

Philosophy and Science in the Arts Curriculum of the  
Scottish Universities in the 17th century

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## ABSTRACT OF THESIS

The philosophical and scientific teaching in the universities of 17th century Scotland has frequently been dismissed as Aristotelian and reactionary. However, there must surely have been some development during the century for the universities to have achieved as much as they did in the 18th century. It is the purpose of this study to investigate the content of the courses in philosophy and science given at the Scottish universities in the 17th century with a view to answering the following questions: Was Aristotle really taught so exclusively throughout the century? Or, given that the universities did concentrate on Aristotle to a great extent, was this Aristotelianism so monolithic and uniform as is sometimes made out? Did Scottish university teachers make any acknowledgement of the philosophical and scientific revolutions which were taking place in the 17th century? How were the universities affected by the political and religious struggles of the century? Was the teaching the same at Aberdeen, Edinburgh, Glasgow and St. Andrews, or were some of the universities in advance of others?

The main sources for our knowledge of 17th century Scottish university teaching are student lecture notes or dictates and the graduate theses produced by the masters or regents for the students to defend at the annual laurcation ceremony. The dictates and theses are supplemented by library lists, university and faculty minutes, and the reports of the numerous commissions appointed by church and state to visit the

universities during the 17th century, together with other papers relating to these commissions.

Throughout the century the curriculum at all the universities remained the same in outline, viz. 1st year: Greek; 2nd year: Logic/ Metaphysics; 3rd year: Metaphysics/ Ethics; 4th year: Physics. Until the 1660s the teaching in the 2nd, 3rd and 4th years consisted of commentaries on Aristotle, but the authorities cited by the regents show that they were acquainted with more 'modern' Aristotelians, e.g. Zabarella and the Coimbra commentators. Frequently the works of such authors were praised, and the library lists show that they were bought fairly extensively. From the 1660s onwards Cartesianism entered the courses. At first the regents distrusted this new philosophy, and indeed as long as Descartes was taught in the Scottish universities, many of the regents and visiting commissioners feared the atheistic implications of Cartesian mechanism. However, Descartes was accorded warm praise in the theses and dictates for Edinburgh, St. Andrews and Aberdeen during the 1670s and 1680s. By the 1690s the enthusiasm for Descartes was beginning to decline, although some of the regents continued to teach Cartesianism into the 18th century. In Logic and Metaphysics the teaching of Locke was often adopted, and in Physics Newtonian ideas were expounded.

The teaching was perhaps most conservative in Logic, where Aristotelian ideas continued to be taught by the scholastic method of debate until the beginning of the 18th century. Despite the praises of Descartes's method, and later of Locke, the scheme for Logic teaching was probably based on



scholastic textbooks such as those of Keckermann and Burgersdijk. In Metaphysics too scholasticism tended to predominate, but because of Scotland's religious allegiance there are numerous quotations from and references to the works of Protestant theologians. Once commentaries on Aristotle ceased, Metaphysics was divided into Metaphysics proper and Pneumatology, the two subjects frequently being separated and taught in different years of the course.

The Scottish regents saw Ethics as a strictly practical science, aimed at teaching their students how to live as godly citizens. Accordingly in their Ethics teaching they tended to cite authorities less frequently than in their teaching of other subjects; instead they gave rules of conduct for their students. After the 1660s many of the regents based their teaching on Henry More, and Descartes's theory of the passions was widely accepted. Discussion of different types of justice and of natural law formed a great part of the Ethics dictates and theses, and Grotius, Cumberland and Puffendorf were all referred to.

In Physics the experiments of many contemporary or recent scientists were described. Robert Boyle and the Royal Society were universally praised by the regents. The work of English, French and Dutch scientists featured prominently in the lectures from the 1660s onwards, and were bought for the libraries. Cartesian physics and cosmology were taught in the last quarter of the 17th century, but by the beginning of the 18th century many of the regents had gone over to Newtonianism.

The political and religious upheavals in 17th century Scotland affected staff appointments in the universities. Many of the regents lost their posts in 1638 and during the Civil Wars, at the Restoration, and at the Revolutionary Settlement in 1689. Unorthodoxy in their dictates and theses was frowned on, and sometimes led to dismissal. Various commissioners tried to regulate what was taught in the universities, and in the 1690s a project for a uniform course made considerable headway. However, despite this interference on the part of state and church, the universities managed to preserve a fair degree of autonomy, and both their statements in answer to the commission's proposals in the 1690s and the actual content of their dictates and theses show a concern to uphold their academic integrity.

The courses in the Scottish universities were sufficiently similar to enable one to talk of 17th century Scottish university education in general terms, but the universities did not always agree among themselves, as their comments on each other's contributions to the uniform course show. Edinburgh seems generally to have been the most advanced of the universities in its teaching, Glasgow the least.

The conclusion of this survey is that university education in the 17th century was by no means as consistently uninspired as is sometimes supposed. It is true that neither the system of regenting nor the troubled state of the country in the 17th century were conducive to a high educational standard. Nevertheless, there is some evidence of new ideas

in the dictates and theses from 1600 to the 1660s, and after that date many of the regents showed themselves to be conversant with new developments in all fields of philosophy. By the beginning of the 18th century the way had been paved for the intellectual achievements of that century in the universities.

I declare that this thesis has been composed by myself and is my own work.



## Chapter 1

The 18th century features prominently in histories of Scotland, and with justification, for it was in the 18th century that intellectual and cultural life in Scotland flourished to an extent virtually unparalleled before or since. The universities played an integral part in this Scottish enlightenment. We need only list the names of some of the leading teachers as evidence: at Edinburgh Colin Maclaurin taught mathematics, William Robertson was Principal of the University and Adam Ferguson taught natural and moral philosophy; William Cullen and Joseph Black both taught chemistry first at Glasgow and subsequently at Edinburgh; Francis Hutcheson and Adam Smith lectured in moral philosophy at Glasgow. And these are only the most outstanding names among a host of teachers who then contributed to Scotland's intellectual ascendancy.

By contrast, university teaching in the 17th century is often thought of as being uninspired, to say the least, with only a little Cartesianism and, towards the end of the century, some Newtonian ideas in the teaching of the Gregorys to relieve the monolithic structure of Aristotelian traditionalism. Thus Hugh Trevor-Roper maintains that, apart from a brief flicker of enlightenment during the English conquest in the 1650s, Scotland spent most of the century under a calvinistic gloom, which allowed little if anything in the way of new ideas.<sup>1</sup> He states that "at the end of the seventeenth century, Scotland was a by-word for irredeemable poverty, social backwardness,

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1. Hugh R. Trevor-Roper, "Scotland and the Puritan Revolution," Religion, the Reformation and Social Change (London, 1967); pp. 392-444

political faction. Its universities were the unreformed seminaries of a fanatical clergy." <sup>1</sup> Hugh Kearney's verdict is that, while there is some evidence that the masters in Scottish universities were in touch with contemporary philosophical and scientific ideas, for the most part they followed the course taken by Glasgow's mid-century Principal, Robert Baillie, and "nailed Aristotle to the Presbyterian mast." <sup>2</sup> T.C.Snout <sup>3</sup> also takes Baillie as being representative of the type of teacher in the Scottish universities in the 17th century. He states that work of academic stature was produced in Aberdeen during the 17th century, but that Edinburgh, Glasgow and St.Andrews "tended to fall, from the days of Andrew Melville onwards, into the hands of the most crushingly Calvinist ecclesiastics, such as Robert Baillie ... who wrote that he would 'gladly consent to the burning of many thousand volumes of unprofitable writers,' including those of John Selden, Hugo Grotius, and the works of that 'very ignorant atheist' and 'fatuous heretic,' Descartes" (p.187).

One wonders, however, whether the flowering of learning in the 18th century could have happened in such a vacuum as this view of 17th century university teaching implies. Surely there must have been some development in the 17th century for the 18th century to have achieved as much as it did? One is led to ask

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1. Hugh R.Trevor-Roper, "The Scottish Enlightenment," Studies on Voltaire and the 18th century, lviii (1967), p.1636

2. Hugh F.Kearney, Scholars and Gentlemen: Universities and Society in Pre-Industrial Britain, 1500-1700 (London, 1970)

3. Thomas C.Snout, A history of the Scottish people, 1560-1830 (London, 1969)



whether Aristotle was really taught so exclusively throughout the 17th century? Or, given that the universities did concentrate on Aristotle to a great extent, was this Aristotelianism so monolithic and uniform as is sometimes made out? Other questions follow on from this. Did Scottish university teachers in fact make small or no acknowledgement of the philosophical and scientific revolutions which were taking place in the 17th century? Was the teaching the same at Aberdeen, Edinburgh, Glasgow and St. Andrews, or were some of the universities in advance of others? How do the curricula of the universities in Scotland compare with those in force at Oxford and Cambridge, or the continental universities? How were the universities affected by the political and religious struggles of the century?

It is the purpose of this study to try to investigate these and other questions by an enquiry into the content of the philosophy courses and the system of teaching at the Scottish universities during the 17th century and at the beginning of the 18th century.

There are three main contemporary sources of information about university courses and teaching for this period - student notebooks, graduate theses, and official university and commission reports and minutes. Together with such subsidiary items as library lists and the correspondence of people who were in some way connected with the universities, they provide us with a wealth of evidence for what was being taught in the 17th and early 18th centuries, and how.

Since this study is mainly concerned with the 17th century the terminus a quo for all the material is obvious, viz. 1600.



The year 1700, however, does not provide such a neat terminus ad quem. In many cases we have student notebooks and theses of a given regent for both the 1690s and the early years of the 18th century, and it is useful to be able to follow through the development of his ideas. For Edinburgh I have taken 1708 as the terminus ad quem, since this was the year in which the university was reorganized and regenting gave way to the professorial system. The changeover in the other universities occurred too late in the 18th century for me to be able to deal with student notebooks, theses, faculty minutes etc. up to that date without straying far beyond the limits of the present study. In the cases of Aberdeen, Glasgow and St. Andrews, therefore, I have stopped at the earliest convenient date in the 18th century.

There are well over 150 manuscript student notebooks, of which by far the largest number relate to Edinburgh University. Among the manuscript collections of the National Library of Scotland, and of the University Libraries of Aberdeen, Edinburgh, Glasgow and St. Andrews, I have come across 65 notebooks for Edinburgh, covering a period from 1613 to 1705; for Glasgow I have found 47 notebooks covering the years from 1637 to 1715, for St. Andrews 22 notebooks, covering the years from 1642 to 1723, and for Aberdeen 36 notebooks, covering the years from 1611 to 1717.<sup>1</sup> There is also a small collection of student notebooks at Worcester College, Oxford, and isolated examples are to be found in some other college libraries. In addition there are

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1. These are all listed in Appendix 1

probably a fair number of student notebooks in Register House, but for the purposes of this study the main collections in the university libraries and the National Library of Scotland give a sufficiently comprehensive picture of what was being taught in the Scottish universities in the 17th century.

These notebooks, frequently referred to as dictates, contain notes taken down at dictation speed from the lectures of the regents. This method of teaching had the disadvantage of being extremely slow and tedious. Moreover, the increasing availability of printed texts in the 17th century meant that it was no longer the only possible form of teaching, as it had been in earlier times, when it was only through the master summarising and commenting on the texts of Aristotle and others that students could become acquainted with these authors. Indeed, as we shall see when we discuss the teaching of philosophy in the universities, frequent attempts were made during the 17th century to stop the practice of dictating lectures. However, from the researcher's point of view this method has the advantage of giving more or less an exact record of the regent's words.

It is possible to date the dictates fairly accurately, although the graduate theses, which can be assigned to a particular year, provide more certain evidence of when any given idea first entered the course. The headings of the dictates usually give the subject matter of the lectures, by whom dictated and taken down, and the date. All this would seem fairly conclusive, but we have to reckon with the perennial student desire to avoid lectures, and there is evidence that dictates were copied for sale to students. Alexander and Kenneth Mackenzie, who were at St. Andrews from 1711



to 1716 are on record as having purchased sets of lecture notes.<sup>1.</sup> Alexander bought a copy of Scrimgeour's Logics "of good write" for £1.4s (Accounts, 24 June 1713). A set of dictates in pneumatics was written out for Kenneth at a cost of £3 (Accounts, 10 February 1715), and Gregory's dictates on astronomy were copied out for Alexander at four shillings a sheet (Accounts, 2, 14, 26 February 1713; 24 April 1713; 14 May 1713). The casual way in which these transactions are recorded suggests that the selling of dictates was more or less standard practice. Indeed, the notebooks themselves provide evidence that student dictates were sold. In several of them names of owners other than the student who actually wrote down the notes appear on the fly leaves or endpapers.<sup>2.</sup> For instance, in the dictates on physics by John Wishart, 1680, the names Jacobus Cranston and Robert Rutherford appear on the endpapers. Cranston was the student who wrote down the lectures in 1680, but there is no record of a Robert Rutherford in the Matriculation Rolls until 1688. Presumably the same notes were used by Rutherford 8 years later.

Quite frequently a set of lecture notes by the same regent is duplicated exactly a few years later. Thus in Edinburgh the lectures of Thomas Craufurd on Aristotle's Physics, given in 1653,<sup>3.</sup> are repeated in 1661.<sup>4.</sup> Those of Andrew Massie on the Cartesian system of philosophy appear in 1682<sup>5.</sup> and 1690.<sup>6.</sup> Some

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1. Two students at St. Andrews, 1711-1716, ed. from the Delvine papers by William Croft Dickinson (Edinburgh, London, 1952)

2. EUL - Dk.5.27

3. EUL - Dc.5.122

4. EUL - Dc.5.55

5. EUL - Dc.6.23; Dc.5.115

6. EUL - Dc.7.92

of the lectures taken down from Herbert Kennedy in 1689<sup>1</sup> appear again in 1692.<sup>2</sup> The same thing happens in Aberdeen. The lectures given by George Peacock at Marischal College on logic in 1688-89<sup>3</sup> are repeated in 1690-91,<sup>4</sup> 1694<sup>5</sup> and 1695,<sup>6</sup> while Henry Scougal's manual of moral philosophy for the use of students at King's College appears in dictates dated 1678<sup>7</sup> and 1693.<sup>8</sup>

This may be an indication that the regent has gone on giving the same set of lectures year after year without any updating to encompass new ideas. In the case of Aberdeen and St. Andrews, as we shall see, it may indicate the existence of a standard course. However, a possible explanation is that a student had bought a copy of the earlier lectures from someone, and had taken the precaution of adding to the title page the fiction that these notes were dictated by the appropriate regent and written down by the purchasing student. Such a precaution would not have been without point, since in Edinburgh, at least, the notebooks of students were liable to inspection by members of the Town Council; there is an act of the Town Council for February 1626, ordaining two visitations to the college by the council yearly in December and June, when the scholars' books were to be examined.<sup>9</sup> It is worth noting that some of the dictates which are duplicated a few years later have no indication in the heading of the student who wrote them down.

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1. EUL - Dk.3.31

2. EUL - Dc.8.118

3. AUL - M.182

4. NLS - Ms.9387

5. St.A - Ms.1503

6. NLS - Ms.9388

7. AUL - 1026

8. AUL - K.153

9. Charters, Statutes, and Acts of the Town Council and the Senatus, 1583-1858 (University of Edinburgh), ed. Alexander Morgan (Edinburgh, 1937), p.107



Bearing these possibilities in mind, however, the notebooks are an invaluable source of information on the subject matter of the courses. Even given that the notes may have been sold or passed on, they can probably be assigned fairly certainly to the duration of the teaching career of the particular regent mentioned in the heading. And within this period we often do have evidence of the regent coming into contact with new ideas and incorporating them into his lectures. Thus the same dictates of John Wishart on metaphysics and ethics appear in 1671<sup>1</sup> and 1675<sup>2</sup>. In the section on metaphysics the later dictates have additional matter on ens. This may simply be a case of the earlier student having missed these particular lectures, but it may also show that Wishart had revised his lectures and added material. The latter possibility gains support from the fact that the additional material contains references to Hobbes. Hobbes's theories were being discussed and vigorously refuted in a great number of lectures during the 1670s, and Wishart may well have incorporated further material in his lectures so as to take account of this contemporary interest. Not unconnected, perhaps, is the fact that among the books purchased for Edinburgh University Library in 1670 was Thomas Hobbes's Opera Omnia, and in 1672 and 1674 respectively the current interest in the Hobbes controversy was reflected in the purchase of Hobs creed examined by a student of divinity and Templer against Hobs Leviathan. Wishart's lecture notes on ethics crop up again in 1679<sup>3</sup> when

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1. EUL - Gen.698D

2. EUL - De.5.96

3. EUL - Gen.690D

there are additions to both earlier versions, containing further references to Descartes and Hobbes. We also have natural philosophy lectures by John Wishart dated 1671<sup>1</sup> and 1679.<sup>2</sup> The 1679 lectures contain a summary of Newton's theory of light, which suggests that Wishart had read Newton's three papers on this subject which had appeared in the Philosophical Transactions for 1672, 1675 and 1676, together with several papers by others on the same theme. This is only one example of a change in a regent's teaching, but there are many other instances, as we shall see when we come to examine the notebooks in detail.

The dictates are written in Latin, since this was the language of instruction laid down in the statutes. Each notebook generally contains several sets of lecture notes, which frequently correspond to a year's course. The early notebooks are much longer than those which belong to the second half of the century, and they tend to be commentaries on Aristotle. These commentaries are in a very stereotyped form and show clearly the influence of disputation as a method of teaching. Usually the master begins with a summary of the book or section he is about to discuss, and then proposes a series of questions, each of which is answered in turn. The answers consist of carefully numbered points which are subdivided and, before moving on to the next point, the master lists objections, each with replies. Even when the notebooks cease to be commentaries on Aristotle, and the content of the lectures changes, the form in which they are delivered lingers on, and is still to be seen in the notebooks of the 1690s.

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1. EUL - Gen.699D

2. EUL - Gen.568D; Gen.690D



Complementary to the dictates are the graduate theses.<sup>1.</sup>

These are in printed form, and were produced for the annual graduation ceremony at the end of the four year arts course. They consist of a list of theses, probably composed by the regent in charge of the current magistrand class; the theses relate to the subject matter of his course, and were to be defended by the candidates at their laureation ceremony. Probably their defence of the theses had little effect on the candidates' actual degree. More importance seems to have attached to examinations of the past year's work which took place at the beginning of each academic year before the course began. However, a large gathering of local ministers, advocates, baillies etc. was usually present at the laureation ceremony, and if the candidate excelled himself in debate it could be a passport to a future career.

The theses are often preceeded by a laudatory address to some patron, and a list of candidates, usually arranged alphabetically. The earlier theses are divided up by subject; they usually contain Theses logicae, physicae and ethicae, with the addition in some cases of Theses metaphysicae, mathematicae, geometricae, sphaericae or astronomicae. Later in the century (ca.1670-80) the divisions are dropped, and the theses appear in one continuous numbered sequence. The earliest and latest theses are in book form, but theses published during the period from 1640 to 1675 often appear as broadsheets.

The most complete set of extant theses is that for

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1. The extant theses for all the universities are listed in Appendix 2

Edinburgh: We have theses for 70 of the years between 1596 and 1705. Aberdeen is also well represented, with theses for 56 of the years between 1616 and 1712. There are 34 different theses extant for Marischal College and 38 for King's College. There are fewer for St. Andrews (theses for 31 of the years between 1600 and 1703; 21 different theses extant for St. Leonard's College and 19 for St. Salvator's), but still enough to give us a picture of the type of theses being defended throughout the period. Hardly any theses survive for Glasgow; H.G. Aldis<sup>1</sup> records only 7 in the 17th century.

It is probable that in several cases where there are no extant theses for a particular year, theses were not in fact produced. We have evidence that, for religious and political reasons, graduations were sometimes private rather than public, and for these no theses would be printed. In his diary John Lamont, factor to the family of Lundin in Fife, records that in 1652 "the lauriation in St. Andrews was private (without examination), about 6 or 7 weeks before the ordinary time; for if public, they wold beine urged with the Tender by the English, so refusing it, they wold not bein graduat."<sup>2</sup> Thomas Craufurd mentions several occasions when, for one reason or another, there was no graduation.<sup>3</sup> In 1608 there were no candidates for graduation because 4 years earlier no students had entered Edinburgh University

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1. Harry G. Aldis, A list of books printed in Scotland before 1700 (Edinburgh, 1970). The figures for all the universities are mostly taken from this source.

2. The diary of Mr. John Lamont of Newton, 1649-1671 (Edinburgh, 1830), pp. 44-45

3. Thomas Craufurd, History of the University of Edinburgh from 1580 to 1646 (Edinburgh, 1808)



on account of the plague. Because the Covenanters required an oath of allegiance from students before they could graduate there was no graduation disputation in 1638, though it appears that theses had been distributed. Again in 1639 the graduation was private: "Mr. James Wiseman advanced the 51st class (to the number of 42) to the magisterial degree; which act, in respect of the commotions and fears of the country, was performed privately in the higher hall of the College, only the Council, Ministers, and Maisters of the Colledge being present, without examination or publick dispute." (Craufurd, p.136). Once the precedent of private graduation had been set, the practice became more frequent. Craufurd records further private graduations in 1640, 1644 and 1645. There is a reference in the Edinburgh Town Council records for 1653 to the fact that the magistrates were unable to defray the usual expense attending a public graduation, and moreover the troubled state of the country rendered it unwise.<sup>1</sup> In 1681 the visitation committee of the Royal Commission asked Glasgow University why public laureations had not been held for several years past. The principal and masters replied that they had been ordered to laureate none but such as should take the oath of allegiance, and there were so few that would do so that they could not afford the expense of a public laureation.<sup>2</sup> At Aberdeen too, private graduations appear to have been common from the middle of the century. In 1664 the Royal Commission decreed

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1. EUL - Dc.5.5

2. Annuaire Alne Universitatis Glasguensis, ed. Cosmo Innes, (Glasgow: Maitland Club, 1854), vol.2, p.491

that no laureations were to be held in private, or without examination, except on weighty considerations, and this injunction was repeated in 1669 and 1675.<sup>1</sup> Whenever a church party, whether Presbyterian or Episcopalian, was in the ascendant, students of the opposite persuasion were effectively debarred from public laureation because of the necessity of taking an oath of allegiance.

Towards the end of the century the practice of public graduation was falling more and more into disuse. Quite apart from political reasons, students were often unwilling to stay in residence from when their courses ended (about April) until graduation in July. Thus, in 1695 Marischal College complained of the difficulties of keeping students together till the end of the session: "the custom of the country, the humour of some parents, and the poverty of others, have hitherto rendered the continued endeavours of masters to keep their classes together till the time appointed ineffectual."<sup>2</sup>

During the 18th century, with the advent of the professorial system, students chose which subjects they pleased, and did not follow a set curriculum; frequently they did not graduate. This, added to the fact that professors had no financial incentive to push their students to graduate (the regents had always received a gratuity from the graduating students), meant that class theses ceased in the 18th century.

The dictates and theses are the primary sources of

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1. Festi Aberdonenses, ed. Cosmo Innes (Aberdeen: Spalding Club, 1854), pp.321; 322; 340

2. Evidence oral and documentary taken and received by the Commissioners appointed by His Majesty George IV, July 23, 1826...for visiting the Universities of Scotland (London, 1837), vol.4, p.312



evidence for the content of 17th century Scottish philosophy courses. For contemporary theories about what the courses should contain, and how they should be taught, the reports of various commissions appointed to visit the universities, faculty minutes, \* and other college records are invaluable. Visitations were made to the universities throughout the 17th century - by commissioners appointed by the Crown, by Parliament, by the General Assembly, by the universities themselves and, in the case of Edinburgh, by the Town Council. Many of the reports and recommendations of these commissions are to be found in 4 volumes (one for each university) of parliamentary papers published in 1837 entitled Evidence oral and documentary taken and received by the Commissioners appointed by His Majesty George IV, July 23 1826...for visiting the Universities of Scotland. Minutes of faculty and senate meetings exist for some of the universities, along with other university records, and for Edinburgh, which was under the jurisdiction of the Town Council, many references are to be found in the council records to matters relating to teaching in the University.

In addition to these sources there are diaries, collections of letters, memoirs and other writings relating to students or masters, or to people who had some other connection with the universities. Sometimes these provide a very detailed, accurately dated record of what was happening at a particular college at a particular time, e.g. the Dalvine papers referred to above (p.6); in addition to telling us a good deal about student life at St.Andrews, James Morice mentions in the course of the letters a considerable number of books which were purchased for the boys during their period at St.Andrews - a useful indication of the



textbooks being used in the course and of books recommended by the masters.

Apart from the dictates themselves, an obvious source for the philosophical and scientific ideas of the regents would be any works they might have published. Even if the ideas contained in such works did not appear in the dictates, it would not be unreasonable to suppose that they might nevertheless have been aired in the discussions and disputations which formed an integral part of the course. However, this type of source material is in fact very meagre, mainly, I imagine, because regents were often very young, frequently beginning their regenting straight after graduation. Some of them did publish works later in their careers, but these cannot be taken as evidence of what they taught or discussed with their students at the time of their regenting.

Library lists exist for much of this period. At most of the universities a fee was exacted from students at matriculation and at graduation for library funds. We are fortunate in having for Edinburgh a record of what books were purchased annually with these fees for the years between 1627 and 1696.<sup>1</sup>

Frequently regents' names appear as signatures to the account of how the fund was spent, and it is reasonable to assume that they had some say in what books were bought, and would choose books relevant to their course. These annual records of purchases are continued in the general book of disbursements kept by the

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1. A record of contributions paid by students at matriculation 1653-1695, with details of books purchased to 1693 - EUL - Dc.1.33 and A register of contributions from magistrands, with the titles of the books bought, 1627-1692 - EUL - Dc.1.32

librarian, Robert Henderson, from 1693 to 1719.<sup>1</sup> There are also records of donations made during the period,<sup>2</sup> and while these are not quite so useful, being less likely to correspond to the regents' needs in teaching, they nevertheless indicate what books were available for consultation at any given date.

Glasgow University Library and Archives possess similar lists of books. At Glasgow the regents took it in turn to act as quæstor, administering the library funds, and there are records of the books they purchased for many of the years from 1632 to the middle of the 18th century.<sup>3</sup> There is also a catalogue of books which were in the library in 1691, with additions made sometime at the beginning of the 18th century<sup>4</sup> and, as with Edinburgh, we have lists of donations.<sup>5</sup>

For St.Andrews there are no year by year records of library accessions, but there are catalogues of the University Library holdings dated 1644-49, 1687<sup>6</sup> and 1714<sup>7</sup> by comparing these it is possible to see what books were acquired between 1644 and 1687, and between 1687 and 1714. There is a library catalogue for St.Salvator's College for the end of the 16th century and another one dated 1744, but none for the intervening dates, so we have no means of knowing when the books listed in the later catalogue came into the library. However, there is a catalogue for St.Leonard's College of the large donations made to the library by the regents Mungo Murray and John Wedderburn in the 17th century.<sup>8</sup>

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1. EUL - Da.1.34

2. List of books donated or purchased from funds donated 1619-1644 - EUL - Da.1.29 and Henderson's Donation Book: a record of books donated to the University Library 1667-1755 - EUL - Da.1.31

3. GUA 26624      4. GUL - Special Collections Room      5. e.g. GUA 26778

6. St.A - Ms.Z921 St.A.C.07      7. St.A - Ms.Z921.S2D03

8. St.A - Ms.Z921 St.A.L.47



For Aberdeen there is a catalogue of the books in King's College Library which was made ca.1700<sup>1</sup> and another dated 1717.<sup>2</sup>

King's College also has a catalogue of books presented to the library from 1684 onwards,<sup>3</sup> while Marischal College has a catalogue of books bequeathed to the library from 1669 to 1713.<sup>4</sup>

Care is necessary in the use of library lists as evidence for what was being taught. The fact that a book is in a library does not mean that it is read, and there are no borrowers' registers for this period. Nevertheless, the lists do tell us what books were available in the library and, when used in conjunction with the dictates, they can indicate what authorities, and which of their works were probably being consulted.

These, then, are the contemporary sources from which we can build up a picture of the 17th century Scottish university philosophy course. In the following chapters I propose to use them to describe and analyse the content of the courses in logic, metaphysics, ethics or moral philosophy, and physics or natural philosophy in the 6 Scottish colleges. But before doing so I shall outline in greater detail the system of teaching which was in force in the 17th century.

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1. AUL - K.111

2. AUL - K.113

3. AUL - K.114-115

4. AUL - M.71

## Chapter 2

The Scottish university arts course in the 17th century lasted 4 years. On going up to university, usually around the age of 14, students entered the Bajan class. Second-year students were known as Seniors, the third year as Bachelors and the fourth as Magistrands.

Teaching was by the regent system. Instead of having one teacher allotted to each subject, as in the professorial system, each regent took his class right through the philosophy course, teaching every subject in turn. The disadvantages of this system are obvious. Since he was obliged to master all branches of philosophy, the regent would have had little opportunity for specialization, and insufficient time to keep abreast of new trends in philosophical and scientific thinking, and incorporate them in his lectures. Indeed, possibly one main contributory factor in the changeover from the regenting to the professorial system in the 18th century was the failure of the regenting system to cope with the specialized knowledge of mathematics needed for a proper grasp of Newtonian philosophy. Moreover, as was mentioned above (p.15), the regents were often young, being appointed frequently from among newly graduated students. Their lectures were probably the same in content as the lectures they themselves had heard only a year or two previously.

Various attempts were made during the 17th century to institute a professorial system. At Edinburgh in 1620 the senior regent was made "public professor of mathematics" and the second regent "public professor of metaphysics". However,



all that was required of the new professors was to give two lectures a week in their subjects before the two highest classes, and these lectures were outwith the set curriculum. The professorship of mathematics seems to have been revived again in 1640 with the appointment of Thomas Craufurd as regent, a post which he held in conjunction with the chair of mathematics. However, it lapsed at Craufurd's death in 1662. A definite chair of mathematics was founded at Edinburgh in 1674 - to be held in succession by three members of the Gregory family - but, strictly speaking, this was also outwith the 4 year philosophy course.

At Glasgow a professorial system was in fact operating at the beginning of the century, but a return to the regenting system was enjoined by the Commission which visited the university in 1642:

"The visitation after tryall, taking to consideration that every Regent within the College has beine accustomed hithertills to continue for more yeares togithere in on and the sam Professione; so that the Schollers of on and the self sam Class are necessitat yearlye to change their Masters; Have found it more profitable and expedient, that the present course of teaching the schollers be altered; and that every Master educate his own Schollers through all the 4 classes."<sup>1</sup>.

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1. Evidence, vol.2, p.260



An attempt was made to reestablish the professorial system in 1681, when the Royal Commission enacted "that in all time coming each regent or master shall be fixit to a certain class."<sup>1</sup> However, this statute was subsequently rescinded "because that this (i.e. regenting) will be the more profitable way, and that it is more conform to that uniformity that is recommended by the King in the said Commission among the Universities of this kingdom."<sup>2</sup> A professor of mathematics was appointed in 1691, but, as in Edinburgh, the lectures seem to have been outwith the curriculum.

In 1695 representatives of Glasgow University stated their opinion in favour of ending the regenting system. This was in response to the Commission's proposal that a regent should be "fixed" for the first year of the university course and appointed to teach Greek. The reasons why Glasgow University favoured the professorial system are listed:

"...with all submission, the plurality here of our number doe think the fixation of all classes in everie Universitie verie necessar, for, these reasons: (1) That thereby tentations to animosities among regents would be removed, which (though we here be as little challengable as any are or have been in other places) cannot be ordinarily evited, ofttymes to the prejudice of discipline, admitting of unqualified students to any class and particularly to ascend to a superiour and so to obtain the degree of Master.

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1. Munimenta, vol.2, p.492

2. ibid., p.493

(2) It would make all Masters more fit for teaching that part allotted to them, when otherways by this ambulatory way they can be. (3) That it would prove a great mean both of producing one uniform care of all Masters towards all the scholars, and of one equal regard, obedience and respect in all students towards all the Regents, they either having been, or are to be, under the immediate inspection of them all." <sup>1.</sup>

They admitted that there might be points in favour of the regenting system, but believed that they could all be answered:

"The inconvenience of fixing Regents seems to be these:

(1) That thereby Regents may become more negligent in their duty; but this will not appear mightie, if Masters be but considered to act from a principle of natural conscience and moral honesty, as also of credit, to have that class in which they are concerned, so instructed that upon their promotion to a superior class, they be found duly fitted by the Examinators, not to add that Regents are under the inspection of Principal and Dean of Faculties as to their diligence and teaching. (2) That different masters use different terms, methods and ways of teaching, which difficulty will be removed if every Regent have his particular province allowed to him, in philosophy especially, if there be a common course to be taught by all. (3) That thereby Masters shall not be so well acquaint with the humours, inclinations and ingine of their schollars, nor they with

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1. Evidence, vol.2, p.269



their Masters. But experience teaches that their humours and inclinations are not so deeply hid but in a few weeks they appear; and on the other hand, we see that students are more respectful to their Masters upon their first entry than afterwards."<sup>1</sup>.

At Aberdeen too a professorial system seems to have operated intermittently at the beginning of the century. It was finally abandoned at King's College in 1641, and at Marischal College in 1642-43; in both cases the reason for the changeover is unknown, but it may well have been a result of the same Commission which reintroduced regenting to Glasgow. Among the laws promulgated annually from 1653 to 1661 by John Row, Principal of King's College,<sup>2</sup> was one which stated that all masters were to go through the whole 4 year's course, and not devote themselves to one art or science. A chair of mathematics was founded at Marischal College in 1613, but the post was not filled until 1626, and despite the plea made by the College in 1638 to the Provost, Baillies and Counsell "to contrive the ordinar lecture of the professor of mathematics in a 4 year's course,"<sup>3</sup> the mathematics lectures appear to have remained extra-curricular.

Concerning the method of teaching at St. Andrews, we read in a report for St. Salvator's dated 1588 that it was agreed "contrair the act of Parliament,<sup>4</sup> that the Maisteris that

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1. Evidence, vol.2, p.269

2. Fasti Aberdonenses, p.240 ff.

3. Fasti Academiae Mariscallanae Aberdonensis, ed. Peter J. Anderson (Aberdeen 1889-98), vol.1, p.146

4. i.e. the New Foundation and Erection of the three colleges in the University of St. Andrews, ratified by King James in 1579.

begynnis with the classes call teiche thame forwart the hail course of Philosophie,"<sup>1.</sup> and, judging from the graduation theses, the regenting system was in force at St. Andrews throughout the century; we have graduation theses for several successive years and in each case the regent of the magistrand class is different. A chair of mathematics was established at St. Andrews in 1663, James Gregory being the first occupant, but as in Edinburgh and Aberdeen, mathematics does not seem to have been an integral part of the course. This supposition gains support from the fact that the visitation commission of 1695 listed in their Overtures to the Colleges the provision: "That the regents be obliged to teach to their students some rudiments of mathematics, with their courses, yearly"<sup>2.</sup> - a provision that would surely have been unnecessary if the lectures given by the professors of mathematics had been considered part of the course. Moreover, in a proposed course put forward by the masters of St. Andrews in 1687, it is stated that: "As to mathematics, it is not doubted that those who in the first two years have got some knowledge of the principles, and the usefulness, necessity and pleasure of that science will apply also themselves to the public professor of it for making greater progress than is possible in their private schools."<sup>3.</sup>

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1. Evidence, vol.3, p.194

2. Evidence, vol.2, p.272

3. EUL - Dc.1.4



Despite all the discussions about the professorial system and the attempts to introduce it, regenting only finally gave way to the professorial system in the 18th century. This transition took place at Edinburgh in 1708, at Glasgow in 1727, at St. Andrews with the union of the colleges of St. Salvator and St. Leonard in 1747, at Marischal College in 1753, and at King's College not until 1799.

As was mentioned in the introductory chapter, the method of teaching was by lecture and disputation. In accordance with the regulations, the mornings were spent in lectures and the afternoons or evenings in disputation. In a minute of the Edinburgh Town Council, dated 3 December 1628, it was stated that the duty of the regents was to teach the lesson in the mornings, and confer or dispute in the afternoons.<sup>1</sup>

The dictating of lectures seems to have remained in force throughout the 17th century and into the 18th century, but the practice was not without its critics. The records of the Commissions appointed to visit the universities show that there was concern over this method of teaching, and several attempts were made during the 17th century to put an end to the practice of dictating notes and to introduce a uniform course. In 1642 the Commission of the General Assembly stated that:

"Because the dyteing of long notes hath in tymes past proven ane hindrance, not only to other necessar studies, but also to the knowledge of the text itselife, and to the examination of such things as are taught; It is therefor seriously recommended by the Commissioners to the Doane of Faculty of Artes, that the

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1. Charters, Statutes and Acts of the Town Council and the

Senatus, pp. 118-119

Regents spend not too much tyme in dyteing of thiro notes."<sup>1</sup>  
 And the same Commission recommended the production of a uniform course. St.Andrews was to produce notes on metaphysics. Glasgow was allotted logic, Aberdeen ethics and mathematics and Edinburgh physics. However, the project came to nothing, as did further attempts to introduce a uniform course in 1664, 1672 and 1683.

At Aberdeen, however, King's and Marischal Colleges made plans for a joint course in 1676; there is a resolution for that year to the effect that "there be courses for the several years, each drawn up by all the masters of the respective colleges, to be approved by the principals and rector, and thereafter to be always and only taught."<sup>2</sup> And indeed, as we shall see when we come to examine the dictates, a standard course does seem to have been taught.

Faculty regulations for Edinburgh show that it was not only the Commissioners who were concerned about the time spent in dictating notes. In October 1668 the Faculty enjoined that:

"The regents shall studie to be as concise and brief in their dictates as possibly they can that there may be more time for examination and dispute."<sup>3</sup>

In 1695, when the proposals for a uniform course really got under way, the Commission once more commented unfavourably on the practice of dictating notes, stating "that in tyme comeing the students shall not spend ther tyme in wryting ther courses of philosophie in their class, but in place therof, that there be ane printed course thought upon."<sup>4</sup> The comments of the various

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1. Evidence, vol.3, p.206

2. Visitation papers, 1636-1717 -

AUL-M.91 3. Charters, Statutes and Acts of the Town Council and the Senatus, p.218

4. Evidence, vol.2, p.271



universities on this overture make interesting reading. Edinburgh, St. Leonard's College and King's College agreed with the Commission without making any comments. Marischal College noted that a uniform course had already been adopted by them: "For the preventing the inconveniency of the Students spending their time in writing, we have all agreed upon, and teach the same Courses, by which there is such abundance of copies to be had that few are obliged to write, except some small tractats, which every particular Master dictats at his pleasure." <sup>1</sup>. Glasgow also agreed with the Commission, but her representatives gave their reasons for doing so:

"As to the overture concerning a printed course, We doe think it may be of great use, both as to the removing of the labour of writing, and for gaining so much tyme, so that the whole meetings may be imployed in examination, explication, disputes, proposing of questions and doubts, and other scholasticall exercises. And further, a printed course allso will have this advantage, that there will be ane harmonie in philosophick terms among all. And it is our humble opinion that, though Regents may not have the libertie of dictating less or mor (otherways in a little tyme it would come to the same way of writing notes as at present) yet, that they may have the freedom of giving arguments viva voce even contrar to the approved and printed course, if their opinion so lead them, quhich their schollars may in short notes of their own write, taken from their Master's mouth, providing always, that quhair Regents doe not so teach them, as that they may doe it by way of a

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1. Evidence, vol.4, p.312

written course; as also, that nothing they so teach be contrar to pietie, good manners, or the doctrine of our Church.

The inconveniences of a printed course appear to us to be two. First, that it will be a temptation both to parents and students of coming too late, and going away too soon. Secondly, that the writing leaves a great impression on many of the students. But we judge these not to have sufficient weight to ballance the other advantages by a printed course." <sup>1</sup>.

The practice of dictation, however, had its defendants at St. Salvator's:

"...wee are assured that Colledges never better prospered nor wer more frequented, than when the wryteing and varying of dictats wer most in fashione, ffor then Students entered yearly in due tyme, and never thereafter willingly absented themselves for fear of blanking, as they call it. And ffor this reason, Regents who before have taught whole Courses, stood not to be at the pains to change them for the next Class, that Students might not trust to former dictats to supply their blanks or encourage their idleness. And wee see already that many, upon this generall opinion of a constant course, doe either all together stay away, or, after they come, soon remove from Colledges, presumeing upon their own private studies... Wee indeed approve that Masters be not allowed to teach or vent errors, or dangerous principles, which wee ar still awarr off, and ar sure non can justly be charged upon us, whatever may be feigned or suggested. But againe, we

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1. Evidence, vol.2, p.271



think it hard to stint or confine from improveing notions and inventions in matters meerly Philosophick, seeing men soon and often alter their thoughts... Moreover, to wryte is not alltogether in vain; many remember things the better they wryte them, and students should not be dry-fingered."<sup>1</sup>.

In general, dictates seem to have stopped when the regenting gave way to the professorial system. In the case of the 17th century notebooks, there can be no doubt that we are dealing with dictates. There are frequently dates in the margins, and the small amount of notes produced for one day can only be accounted for by the fact that they were taken down at dictation speed. Moreover, the headings of the notes usually contain the words "dictated by" followed by the name of the regent. When we come to the notebooks for the early 18th century, we cannot be so certain; the evidence of dates and headings is often absent, and the notes themselves are considerably shorter. However, from external evidence we know that dictates were still being taken down at St.Andrews when the Mackenzie brothers were at university there from 1711 to 1716. Also, in a report for Glasgow University dated 1717, it is stated that John Law continued to teach by the old method, "by dited notes and disputs in all the parts of philosophy."<sup>2</sup> In some of the colleges the cessation of dictated notes may have preceded the introduction of the professorial system (for instance in Aberdeen and St.Andrews, where the changeover from regenting did not take place until well on in the 18th century). However, we can be fairly certain that dictating of notes was in practice throughout the period with which the present study is concerned.

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1. Evidence, vol.3, pp.218-219

2. Notices and documents illustrative of the literary history of Glasgow (Glasgow: Waitland Club, 1831), p.124

Complementary to the lectures were the disputations. Each day discussions took place on what had been lectured on in the mornings, and we have evidence that Saturday mornings were also given over to disputations. Edinburgh Town Council records of the late 1620s record that the 3 higher classes engaged in disputation on Saturday mornings.<sup>1</sup> The annual autumn examinations were by disputation, and elaborate provisions were laid down for these.<sup>2</sup> The laureation ceremony, of course, was also accompanied by a disputation, for which the graduation theses were produced. Commissioners appointed to visit the universities in the 17th century obviously thought that disputations were an integral part of university teaching. In the report of the visitation to St. Andrews in 1642 it is stated that:

"Since both reason and experience do teach that no exercise can be more profitable for Students of Philosophy than Scholastik disputes, It is ordained that the dietes appointed for disputes after supper be kept according to the statutes of the Colledges. That the Magistrams and Bachalours in every Colledge have there disputes every Satturday, and the Regent of the defender of the theses be praeses in the disput."<sup>3</sup>

And representations were made by the Commissioners to Glasgow in 1648, and again in 1664, to uphold the practice of disputation.<sup>4</sup>

This stress on disputation is reflected in the references frequently made by the regents to its usefulness. In 1635 Andrew Stevenson of Edinburgh claimed that dialectic enables philosophers

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1. Charters, Statutes and Acts of the Town Council and the Senatus, p.119      2. ibid., pp.115-117

3. Evidence, vol.3, p.206

4. Munimenta, vol.2, p.318; p.483



to engage in public and private disputations, and trains the mind to receive knowledge through demonstration.<sup>1</sup> Much later in the century, in Herbert Kennedy's lectures of 1687-88 and 1696, the merits of disputation are still being sung. Kennedy says that disputation has the following advantages: it sharpens the intellect; it makes one able to express oneself more clearly; it brings to mind things which one had not previously thought of; it serves as an aid to remembering things. He gives a word of warning, however, against the possibility of disputation making its practitioners pert and precocious.<sup>2</sup>

So far I have been describing the method of teaching rather than the content of the courses. It now remains to investigate the records of the Commissions, university minutes and, for Edinburgh, Town Council minutes, for evidence about the courses. From this we shall be able to see whether there was any change during the century regarding what was considered suitable material for the philosophy course.

At the beginning of the century university teaching seems to have still owed much to Andrew Melville. Towards the end of the 16th century Melville had drawn up the following course for the universities of Glasgow, Aberdeen and St. Andrews. The first year was to be occupied with the learning of Greek grammar, and the rules and precepts of rhetoric. The second year course comprised ars dicendi and the beginning of philosophy. In the third year mathematics, Aristotle's logic, ethics and politics were to be taught, and in the fourth physics, cosmography, history

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1. EUL - Dc.10.19

2. EUL - Dc.8.132; GUL - Ms.Gen.462

and the elements of Hebrew. Arrangements for instruction in philosophy adhered generally to the plan of Ramus.

This curriculum was based on Melville's own teaching, of which his nephew James gives an account, listing the authors and works used by Melville. These included: Ramus's Dialectic, Talaeus's Rhetoric, standard Latin and Greek authors, the Elements of Euclid, the Arithmetic and Geometry of Ramus, the Geography of Dionysius, the Tables of Hontor (i.e. his Rudimentorum cosmographicorum libri cum tabellis geographicis), the Astrology of Aratus, Aristotle's Ethics and De virtutibus, Cicero's Offices, Paradoxes, and Tusculans, Aristotle's Politics and certain of Plato's Dialogues, Aristotle's Physics, and Fernolius's Natural Philosophy. The content of Melville's course shows a mixture of Aristotelianism and the contemporary revolt against scholasticism, as seen in the works of Ramus and Talaeus.<sup>1.</sup>

The reports by the two colleges of St. Andrews to the Commissioners who visited the university in 1588 show how closely Melville was being followed. The outline of the course at St. Leonard's is:

1st year: Greek and the exercise thereof.

2nd year: Rhetoric. Orations of Cicero and Demosthenes. Porphyrius and the Categories, with public declamations.

3rd year: Aristotle's Logic and Ethics.

4th year: Aristotle's Physics and the Sphere of Sacrobosco.<sup>2.</sup>

And the same subjects seem to have been taught at St. Salvator's:

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1. Quoted by Sir Alexander Grant, The story of the University of Edinburgh during its first 300 years (London, 1884), vol.1, pp.80-82.

2. Evidence, vol.3, p.195.



"Mr David Martino teichis the first classe of the cours Isocrates, Aristotle and Homer. Mr Robert Weynis teichis the second classe Taleus, Omtionis of Cicero... The mathematician, Mr Homer Blair, says he teachis the Arithmetique of Ramus... Mr David Monypennie...teichis the Physiques in Greik daylie..."<sup>1</sup>.

Similar in outline was the course included in the Foundation Charter of Marischal College, 1593:

1st year: Greek

2nd year: Organum logicum. System of rule of invention and judgment from the best authors of both languages. Youths to be exercised both in writing and in public speaking.

3rd year: Elements of arithmetic and geometry. Selections from Aristotle's books of Ethics and Politics from the Greek text. Cicero's books De Officiis. Aeromatic books of Aristotle's Organum physicum.

4th year: Physiology. Anatomy. Geography. History. Outlines of Astronomy.<sup>2</sup>

The curriculum noted in the records of Edinburgh Town Council<sup>3</sup> illustrates the same mixture of Aristotle and more modern authors as appeared in Melville's scheme of teaching:

1st year: Latin authors, especially Cicero. Translations from Latin into English and from English into Latin. Cleward's Greek Grammar, to be studied with certain portions of New Testament. Isocrates. Phocilides. Hesiod. Homer. Ramus's Dialectic.

2nd year: Taleus's Rhetoric. Cassander, or something similar.

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1. Evidence, vol.3, p.194

2. Evidence, vol.4, p.236

3. Charters, Statutes and Acts of the Town Council and the Senatus, pp.110-114

Athonius's Progymnasmata. Exercises in dialectic and rhetoric. Aristotle's Organon and other logic works. Porphyrius's Isagoge. Compendium of arithmetic.

3rd year: Dialectical and rhetorical analysis of the authors studied. Aristotle's Posterior Analytics (2 books), Ethics (5 books), Prior Acroamatics (5 books), summary of Posterior Acroamatics (3 books). Description of the human anatomy.

4th year: Aristotle's De coelo (especially Books 2 and 4), Sacrobosco's Sphere, De ortu, De meteoris, De anima, Hunter's Cosmography.

Morgan assigns this statute to the late 1620s. It was the result of discussions held by the Town Council from 1619 to 1628, and Morgan thinks that it is merely a statement of the practice of the College, in the form of a report rather than an injunction.

Even earlier, however, we have evidence of the mixture of Ramus and Aristotle in university teaching at Edinburgh. Craufurd's account for 1604 relates that in the examinations the elder of the philosophy regents interrogated Ramus's Dialectic and the "compoud of Arg syllogistica," while the rest of the examinations were on Aristotle.<sup>1</sup>

The first major statement of education policy for all the universities in the 17th century comes from the Commissioners appointed by the General Assembly to visit the universities from 1639 to 1643. The Commission enacted that in all the philosophy colleges of the universities there should be a uniform course of doctrine, government and discipline, and then went on to propose

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1. Craufurd, History, pp.58-59



a curriculum:

1st year: Greek and a compend of logic.

2nd year: Logic (Aristotle) and elements of arithmetic.

3rd year: Further logic (Aristotle) and Ethics. Compend of metaphysics. Geometry.

4th year: Physics (Aristotle) and Aristotle's De anima.<sup>1.</sup>

The proceedings of the Commission appear to have been ignored by the universities, since in 1643 a new Commission was appointed by the General Assembly, which complained that none of the recommendations of the previous visitation had been carried out.<sup>2.</sup> By 1646 a further note of impatience is heard in the Commission's resolution "that every university provide some good overtures anent speedy prosecution of the intended Cursus philosophicus." <sup>3.</sup>

This resistance on the part of the universities was probably a deliberate attempt to preserve their autonomy in the face of government interference. As we shall see below, the courses actually being taught were not so very dissimilar from that proposed by the Commission, so there could be no great barrier to carrying out the Commission's recommendations on that score. An inkling of the reasons for the universities' delay in complying can be seen in the joint statement issued by a meeting of their representatives in Edinburgh in 1647 that: "it was found expedient to communicate to the General Assembly no more of our University affairs, but such as concerned religion." <sup>4.</sup>

The universities decided to produce their own joint course,

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1. Evidence, vol.2, p.257 and vol.3, p.205      2. ibid., vol.3, p.208

3. Quoted by Andrew Dalziel, History of the University of Edinburgh (Edinburgh, 1862), vol.2, p.144

4. Fasti Aberdonenses, p.liii

each university handling the parts allotted to them before by the Commission, and it was agreed "to enquire after the most accurate modern writers of philosophy, such as Gassotus, Rees, Durgersdicius, Ariaga, Oviedo etc." Moreover, "in the draught of the currag the text of Aristotle's Logicks, Ethicks and Physicks were to be kept and shortly analysed: the textual doubts cleared upon the back of every chapter, or in the Analysis, and the questions and common places handled after the chapter treating of that matter." <sup>1</sup>.

The Commissioners of every university were to produce at the next meeting a note of what was taught in every class. As a result of this we have records of the courses for all the universities apart from Edinburgh, and thus a good indication of what was being taught in the middle of the century - information which is especially useful, since few student notebooks and graduation theses survive for this period.

St.Andrews stated that the aim of the philosophy course was to enable all students to attain some measure of knowledge, not only in the Greek but also in the Hebrew tongue, and to have some insight into all parts of Aristotle's philosophy. The subjects taught were as follows:

1st year: Latin. Greek. Elements of Hebrew and of Arithmetic.

2nd year:"...They shall begin...at a logic compend, and proceed

in learning of dialectic, rhetoric, structura orationis,

with the practice of logic and rhetoric in their

declamations. In March they shall begin in Porphyre,

and proceed to the Categories, De interpretatione and

Priora Analytica.



3rd year: Aristotle's Tonics, then Sophist Captiones and Posteriorum Analytica. Elements of geometry. Aristotle's Ethics.

Compend of metaphysics. Acroamatics, Books 1 and 2.

As much time of this year as may be well spared should be bestowed in the practice of logic.

4th year: Acroamatics, Books 3-5. De coelo. Elements of astronomy and geography. De ortu and De interitu. De meteoris. De anima. Compend of anatomy.<sup>1.</sup>

The course at Marischal College was on much the same lines:

1st year: Clenardus, Antesignanus, his Grammar. Demosthenes.

Isocrates. Phocylides. Homer. New Testament.

2nd year: Brief compend of logics. Text of Porphyry. Aristotle's Organon.

3rd year: Aristotle's Ethics, Acroamatics, Books 1-5, Questiones de compositione continui and some of the 8 books (i.e. of Physics)

4th year: De coelo. De generatione. De meteoris. De anima. Sacrobosco's Sphere. Geometry.<sup>2.</sup>

King's College seems to have retained more of the modern spirit in its course, since it alone mentions Ramus. Otherwise it follows the same pattern as the courses at St. Andrews and Marischal.<sup>3.</sup>

Similar too is the course at Glasgow, though here we have more specific references to the authors used. Thus, in the second year, besides Porphyrius's Isagoge and Aristotle's works on logic, we have references to Burgersdijk's Logiv and Vossius's Rhetoric, and in the fourth year Keckermann's Geography is mentioned. There

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1. Cmusfurd, History, pp.151-152

2. *ibid.*, p.153

3. *ibid.*, p.152-153

is a footnote to Glasgow's curriculum, to the effect that some members had put forward reasons as to why Ethics should be taught in the fourth year after the books De anima, rather than in the third before Physics, but it was thought best to leave this point for discussion until the next meeting of the university delegates.<sup>1.</sup>

Despite the similarity between the curricula of the different universities, their own project seems to have had no better success than the one proposed by the General Assembly Commissioners. Glasgow got as far as appointing someone to compose their portion of the course, as is clear from a minute recorded by Cosmo Innes:

"Regarding the portion of the philosophy course assigned to our college, it was stated that notice should be conveyed to the next meeting of delegates that we willingly undertake the task allotted to us, and that we shall try, God willing, to give some proof of our diligence at the earliest possible date. Since it seemed convenient for that part of the philosophy course which the university delegates assigned to our college to be in the hands of one man rather than of a committee, it was unanimously agreed that John Young should undertake the task."<sup>2.</sup>

However, we have no evidence that the scheme advanced any further than this. Indeed, notwithstanding their earlier fears of church interference, the University Commissioners asked Robert Baillie in 1649 to petition the General Assembly to lend the weight of their authority in urging the universities to hasten their portions of the course. This resulted in the production of a list of

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1. Minimenta, vol.2, pp.316-318

2. *ibid.*, p.315



Rules agreed upon by the Commissioners of the Universities according to which the common course of philosophy shall be drawn<sup>1.</sup> viz.:

1. "As unanimously in diverse meetings of the correspondence it has been agreed, let Aristotle's text in the logics, ethics and physics, except in some unprofitable places, be shortly and clearly opened: the definitions, divisions and axioms therein marked, doubts and objections loosed, and necessary commonplaces handled at the back of these chapters and books where they fall in.
2. Where Aristotle's text is wanting, or has not been in use to be handled, as in the mathematics, metaphysics, politics and rhetoric, let little systems of definitions, divisions, axioms and short commentaries be drawn.
3. Let the style of language be unaffected, plain and terse.
4. Let the whole work be harmonious.

Burgersdijk's Compend of Logic and Vossius System of Rhetoric must not take up above 4 months at most of the 2nd year.

For the whole logic of Aristotle no more time may be spared than the 5 last months of the 2nd and 3 first, after the examinations, of the 3rd, that the next 2 months of that 3rd year may be spent on the ethics, and a little sum of the politics and economics, and the 2 following months on the Arithmetic, Geometry, Optic and Stereometry, and the two last months on the metaphysic system. The whole 4th year may be spent on the physics, taking in Astronomy and Geography at the back of the books de Coelo for 6 weeks time at most.

5. Through the whole course a care would be had to refute solidly but shortly the philosophic errors of pagans, papists, Arminians and others, as they come by hand.
6. The Common and ordinary tenets of Protestant schools would not be changed without an evident necessity; all singularities and needless novations would be eschewed, reserving a free liberty to dispute all public acts, whatever innocent problems any master shall think meet to propound.
7. In handling the logics, let the topic maxims be inculcat and well cleared from objections, and in the handling of the ethics, let the nature of virtues and vices, with the commonplaces of free will, and the annexed principles of humane actions, be accurately but shortly expounded.

Despite these fairly explicit regulations, there do not appear to have been any concrete results in the way of courses.

For the next 40 years the reports of the various commissions have little to say about the courses apart from repeated injunctions to the universities to produce a uniform course.

In 1687 the masters of St. Andrews proposed a method of teaching to the Visitation Committee. They went into considerable detail and their report gives us a valuable record of the state of philosophy at St. Andrews at that time. The first year was to be occupied with Latin, Greek, practical arithmetic, and the elements of geometry, if the master thought the pupils capable of it. In the second year the students were to follow a "clear and short course of logics, for explaining the nature of the most observable properties of our cogitations, the ordinary defects and errors of them with their remedies, and particularly the art of reasoning,



that by the time they come to this last part of the logic course they begin and thence go forward in the elements of geometry, which in effect is true and useful logic, and from then is secretly understood the principles and errors of reasoning." Logic was followed by the part of metaphysics which has a near affinity with logic, viz. "scholastic explanations of, and disputations about notion and properties of being, and these common terms of essence, existence, possibility and impossibility, relation, causality etc. which frequently occur in the scholastic philosophy and divinity." The third year course was to comprise the other part of metaphysics "concerning the nature and properties of spirits, their distinction from matter, the demonstration of the existence of a Deity etc. for which there is sufficient ground and assistance from what is written in the meditations of Descartes and disputes and observations of himself and others thereupon." This was to be followed by a short course of ethics "purged from the scholastic and theologic disputes which are ordinary to be found in these tractates and reduced from common principles of natural reason, nature of humane society, the common passions, humours and inclination of mankind, and what experience and observations afford for rectifying the errors of these, where must not be omitted to explain the Nature of Civil Government, the Absolute and illimited power of the Suprem Magistat, and the universal obligation of subjects to obey, and never to resist his authority." Geometry and, if there was time, physics were also to be taught. In the final year the student was to learn "the rest of physics, the history of nature and experiments, together with the cosmography, optics, spherical trigonometry, and

as much of the mechanics as time will allow. As to mathematics, it is not doubted that those who in the first two years have got some knowledge of the principles, and the usefulness, necessity and pleasure of that science will apply also themselves to the public professor of it for making greater progress than is possible in their private schools." <sup>1</sup>.

I shall be referring to the separate parts of this proposed course in later sections, but in the meantime two general points are worth noting. The most obvious difference between this and the courses outlined earlier in the century is the absence of any mention of Aristotle's works; the only authority mentioned by name is Descartes. The course is still Aristotelian in outline, but the regents had ceased to comment on the texts of Aristotle - a fact which will be corroborated when we come to examine the dictates. Another difference is the increased emphasis on metaphysics, and correspondingly less concentration on logic - possibly a result of the movement from Aristotle to Descartes.

The second major attempt to impose an educational policy on the universities occurred in the recommendations of the Parliamentary Commission appointed at the time of the Revolutionary Settlement in 1690. Its proposals were as follows:

1st year: Greek was to be taught, with a fixed regent.

2nd year: "Logics should be taught without mixture of what concerns metaphysics, and therewithal the common terms, notions and axioms should be taught."

3rd year: Ethics general and special, practice of oratory, and

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1. EUL - Dc.1.4



also the general physics should be taught.

4th year: Should be taught special physics and pneumatology." <sup>1</sup>.

If we allow for the fact that specific works of Aristotle are no longer mentioned, this is basically the course recommended by the Commissioners of 1642. As in the 1640s there was considerable reaction on the part of the universities to the Commissioners' proposals; this time it is well documented.

Edinburgh and Marischal College both agreed to the recommendations of the Commissioners, Marischal adding the comment: "what is proposed to be taught in the 2nd, 3rd and 4th years is exactly agreeable to our practice, only our students are exercised in omatory through all the 4 years." <sup>2</sup>. A document preserved at Register House confirms that this was indeed Marischal's practice in the 1590s. It is entitled The Constitution of Marischal College as to their method of instructing and educating youth, <sup>3</sup>. and states that in the first year philology and the principles of arithmetic are taught; the second class "are instructed in logic and the methods of reasoning, both conform to the principles of old and new philosophy;" the third class "are instructed in the general physiology and principles of natural philosophy conform to the old and new philosophy. There is taught to them an idea of all the hypotheses both ancient and modern... After the period and close of the philosophic course they are...informed in the principles of morality and ethics;" the fourth class "are instructed in the knowledge of metaphysics and special physiology, are informed how to explain all the particular phenomena of nature...are instructed in the principles of Astronomie."

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1. Evidence, vol.2, p.269-270      2. ibid., vol.4, p.311

3. Quoted by Peter J. Anderson, The arts curriculum (Aberdeen, 1892)

Glasgow had some reservations about the recommendations; her representatives thought (a) that some rudiments of rhetoric should be taught in the second year; (b) that metaphysics and pneumatology should be taught in the third year, along with ethics and accurate exercises of oratory ("which is too much neglected in this kingdom"); (c) that general and special physics should not be separated, but taught together in the final year, and experimental philosophy should be covered.<sup>1</sup>

King's College also had some reservations: (a) logic and metaphysics cannot be set wholly asunder "seeing the nature of the things they treat of, and the custom of teaching in all Schools, have so knit...them together, that it is hardly possible to set them intirely asunder without mutilating them both; for we think that genuine Metaphysicks have only two parts, viz. the Predicaments and Transcendentalls; and the Predicaments, being a part of, must be common to, both Logicks and Metaphysicks; and the doctrine of Transcendentalls is absolutely necessary to the right understanding of the generall axioms, terms and notions, which the Overture proposes to be taught in and with the Logicks;" (b) they approved of the proposals regarding the third and fourth year courses, though were at a loss to find what years the metaphysics were to be taught; they were also dubious about what was meant by the practice of oratory; if it meant rhetoric, that was the office of the Regent of Humanity; if it was the declaiming of harangues, that was done by students in all the four classes.<sup>2</sup>

The complaints made by St. Salvator's College are similar to

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1. Evidence, vol.2, p.270

2. ibid., vol.4, p.311



those voiced by King's College. They are on two scores: (a) the omission of metaphysics from the entire course; (b) the practice of oratory and rhetoric was thought to belong to the professors of humanity. The report sent in by St. Salvator's continues with an outline of their course:

1st year: Greek

2nd year: "Logicks, and nothing else, except Arithmetick and some of Euclid's Elements, which wee think sufficient for that year; but wee look upon the common terms, notions and axioms to be a speciall part of the Metaphysicks, very difficult and abstruse, and so ought not to be taught the semies.

3rd year: Metaphysicks and...Pneumaticks, which wee think more proper to add than the general Physicks; for if Metaphysicks be as some doe make them, Scientia de ente quatenus ens est, or as others word it, Scientia entis praecisi a materialitate etc. nothing can be more expressly under it than Spirits, as they may be known by the light of nature in which sense Pneumatologie must be interpret a part of that Science; and though it wer counted a distinct tractat, considering the nature of its object, yet the manner of its treating more agrees with the Metaphysicks. This year also wee teach the Ethicks and follow out Euclid.

4th year: Physicks generall and speciall, which we judge very naturall to conjoyne; neither do we hold it necessary to add to the Physicks anything de anima, ffor all questions concerning it may be discust in the

Pneumaticks. And albeit Aristotle, after his Acroamticks and his other books de corpore naturali has added his books de anima, as a pairt of his physicall systeme, yet he himself did not judge the soul to be the propper subject of those books, but handles it ther only because of its relation to the body... Wee teach also this last year Cosmography and Geography, if students waite and stay so long." 1.

St.Leonard's College had only one stated objection to the proposed course: namely, that logic and metaphysics cannot be split up, and that metaphysics seemed to have been left out of the course altogether. However, the tone of their reply suggests that they thought the proposals somewhat unnecessary. As long as the regenting system continues, their report states, "there will be no method readily fallen upon more expedient than what is generally observed in this University;" their course is then outlined, which is more or less the same as that taught at St.Salvator's. St.Leonard's, however, mention Descartes, whose Meditations are taught in the third year. 2.

Despite all these objections to the Commission's proposed arrangement of the course, the colleges, apart from St.Salvator's, were in favour of the idea of a uniform course, and this time the plan proceeded further than it had in the 1640s. Glasgow was allotted general and special Ethics, St.Andrews Logic and Metaphysics, Edinburgh Pneumatology, and Aberdeen general and special Physics. The Commission decreed that if the regents

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1. Evidence, vol.3, pp.217-218

2. ibid., p.220



refused to join in the scheme, they were to be deprived of office. The faculties were to give in an outline of what points and articles they were to treat of. The several colleges were to keep a correspondence amongst themselves during the writing of their several parts of their work, and to send parcels of their writing to each college "that the same may be revised, and that each of the said colleges be assistant to the others for the better carrying on of the said work." A meeting was appointed a year from the date of the Overture (i.e. July 1696), by which time all the courses were to be ready. The universities consulted together and drew up certain general rules for the composition of their courses:

1. That in composing the course of philosophy to be printed there be as much uniformity in all the parts, in matter, method and style, as is possible, and thereafter as far as philosophical terms will admit, the style of Latin be the plain, pure and neither too profuse nor too concise.
2. That upon the subject the didactic and positive part be separately handled from the elenctic where the same will admit, and premised therunto with a short explication of the technologia and terms which are to be made use of on that head. And that the polemic part be treated...with a short account of the various opinions and hypotheses, if they have not been premised in the didactic part. Thereafter the observations to be laid down and proved by 2 or 3 arguments at most, distinctly set down especially in the logic and metaphysic, because of the weaker capacity of the students...

3. That there be nothing in any part of philosophy impugning or contrary to the confession of faith and doctrine of the church.
4. That all along scepticism be avoided, and that therefore some opinion, in all points, be favoured and sided with, more than others, unless it be in some few questions.
5. That in one part as many questions be handled as by any use to be, that there be no omission, yet cutting off unnecessary debates.
6. That there be a preface prefixed to every part of philosophy, showing in a few words the method and design of the work.
7. That in the didactic part on every head the notion and definition of every thing to be agitated be clearly laid down, with an example given thereof, which examples in the logic and metaphysic especially will be most fitly taken from the peripatetic philosophy, though it be not intended to assert all that philosophy in the physics or other parts can give examples of such questions as these.
8. That the assertions and positions in one part of philosophy do not contradict the conclusions in any other, which may be accomplished if every college keep within the bounds of their own province.
9. That there be harmony in all the parts of philosophy, even as to titles, and that thereafter every part of philosophy be divided first into more particular parts, and then subdivided into capita and articulas.
10. That in every article there be paragraphs and that short in the didactic part, and which are to be numbered in the margin, every article beginning with the first number.



11. That to every part of philosophy there be an Index partium, capitium et articulorum.
12. That the axioms be taken into the several parts of philosophy they belong to, the true ones explained, limited and if need be vindicated, and the false exploded.
13. That every college comprise their part as briefly as may be and that the whole be printed in the same volumes, types and pages, yet every part assunder.
14. That they be taught in this order 1. the logic; 2. the general metaphysic; 3. the special metaphysic; 4. Ethic; 5. Economic; 6. Politic; 7. General physics; 8. Special physics. <sup>1.</sup>

Most of these rules are concerned with method, but particularly noteworthy are clauses 3 and 4, where the regents appear eager to avoid any charges of their philosophy courses showing atheism or scepticism, and clause 7, where the Peripatetic philosophy seems still to be held in very high esteem, despite numerous statements in the actual dictates which suggest the contrary, as we shall see.

It appears that all the courses were actually produced and circulated, though not all within the required year. There is a large collection in Edinburgh University Library of the comments of the various universities on each other's courses,<sup>2.</sup> which I shall discuss in the chapters dealing with the individual subjects of the curriculum. Some of the courses survive. There are two printed courses which are generally stated to be St. Andrews' contribution to the scheme - An introduction to logicks and An introduction to metaphysicks, both bearing the imprint London,

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1. AUL - M.91.1

2. EUL - Dc.1.4

1701. However, as we shall see in the chapters on logic and metaphysics, these courses differ somewhat from what was currently being taught at St.Andrews. Moreover, they are written in English, whereas the statutes still laid down that university teaching should be in Latin. This, together with the fact of the works having been printed in London rather than in Scotland, and there being little obvious relation between them and the comments of the various universities on St.Andrews' contributions to the uniform course, lead me to wonder whether they were in fact St.Andrews' part of the course. However, in the absence of any more concrete evidence, I think we must concur with all the authorities and say that they were.

The manuscript of Aberdeen's course of special physics is in Edinburgh University Library<sup>1</sup> and that of the course of general physics is in Register House. It is thought that the rest of the courses passed into the keeping of Dr.Gilbert Ryle, principal of Edinburgh University, and were lost after his death in 1701.

Probably the uniform courses were never taught in the universities. From 1697 onwards resolutions, increasingly exasperated in tone, were passed by the Commissioners enjoining the various regents, principals etc. to produce their completed courses. By November 1699 still no progress had been made, and the principals were asked to go through the courses, make remarks, and meet in May 1700.<sup>2</sup> After this, however, the Commission seems to have given up trying to get the universities to adopt a uniform course.

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1. EUL - Dc.1.32

2. EUL - Dc.1.4



It is just possible that some of the courses may have been taught in all the Scottish universities for a year or two, since in 1698 the Commissioners decreed that the courses in logic, metaphysics and special physics should be used the following year. However, this is by no means certain; we have only to consider the lack of attention paid by the universities to some of the Commission's other rulings to see the error of supposing that a decree of the Commission was necessarily translated into action. Certainly the practice of dictating continued; we have several dictates dated later than the mid-1690s, and the Delvine papers provide external evidence that the practice continued into the 18th century.

The whole question of uniform courses, which cropped up again and again throughout the 17th century, is part of the larger problem of how universities stood in relation to the state, and also in relation to their sister universities. I shall discuss this subject in more detail in a later chapter, but in the meantime let me just point to some of the paradoxes in the position of the universities over the uniform course, and try to suggest the reason for these paradoxes.

We saw very clearly that in the 1640s the courses being taught in the various colleges were very similar to each other and to the course recommended by the Commissioners; yet the universities failed to carry out either the Commissioners' or their own plans for uniformity. In the 1690s the proposed course was not quite so close to what was being taught in the colleges, as the reaction of the various colleges shows. However, the basic outline was the same and, as stated above, most of the colleges

were in favour of a uniform course in principle. Moreover, the objections of the different colleges to the Commissioners' proposals all concerned more or less the same points, i.e. the omission of metaphysics and the separation of the two parts of physics. One would have thought that the time was ripe for the colleges to agree over a course, especially following on the drastic purges of 1690, when regents with Episcopalian and Stuart sympathies were replaced by Presbyterian supporters of the House of Orange, who might have been expected to feel a sense of triumph and a desire to make a new beginning. The masters even collaborated on a joint statement concerning the composition of a uniform course - a collaboration which would seem to suggest a considerable degree of accord as to what authorities were to be disregarded and why. I shall quote their statement in full, since it contains so many references to philosophers whose writings are mentioned in the dictates and theses, and I shall be referring back to it. The masters agreed with the Commission's proposal for a uniform course and submitted that the "best way will be by causing compose a compleat systeme of philosophy as speedily as may be to be taught in all the Universities at once; for we cannot think it adviscable that any course already printed can be fitt for the following reasons:

1. It is altogether dishonourable to the Universities and the famed learning of the natione that a course of philosophy shall be made the standard and course by authority established which non belonging to any of the Universities have composed.
2. Nor when we have seriously perpended the severall courses of philosophy which ar extant can we find any that wee can recomend





as sufficient to be taught, for many of them are wryte by popish professors and therein they cunningly insinuate the heretical tenets mixing them with their philosophy which are not so easily discernible by the youth. Nor are the courses of philosophy wryte and calculate to be taught the youth, but rather to shew the mens parts who write the same and for the use of these who have made progress in philosophy. The course that runs fairest is Philosophia vetus et nova,<sup>1</sup> which is done by a popish author and smells rank of that religion, but therein the Logicks are barren, and nothing of the Topicks, the Metaphysicks barren, the Ethicks erroneous, and the Physicks too prolix; for Ars cogitandi<sup>2</sup> tho it be a pretty book yet cannot be the standard to be taught, labouring with obscurity, fitt only for the more adult and not intelligible by youths, short in the Topicks, and runs out in many digressiones idly and makes use of Protestant arguments as examples of sophisms, and his treatise De methodo is very dangerous. Derodon<sup>3</sup> his large logicks are too prolix, his Dialectics are verry defective, his Ethicks hardly deserve that name running only out de libero arbitrio etc., and his Physicks only some generall questiones. Burgersdicks Logicks<sup>4</sup> have only positive

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1. Possibly Philosophia vetus et nova ad usum scholae accomodata, by Jean Baptiste Duhamel, published in Paris in 1678

2. i.e. Antoine Arnauld and Pierre Nicole's Logica sive ars cogitandi, published in French in 1662; in Latin in 1674

3. David Derodon (1600-1664), Professor of Philosophy at Die, Orange and Nîmes. The works referred to here are probably Philosophia contracta (Geneva, 1664); Disputatio de atomis (Geneva, 1662) and Disputatio metaphysica de ente reale (Nemausi, 1662)

4. Francis Burgersdijk (1590-1635), Professor of Logic at Leiden. Author of scholastic textbooks, including Institutionum logicarum libri 2 (Leiden, 1626)

doctrine and none of the disputes which are absolutely necessary for the youth in their Logicks to fitt them to dispute, nor gives he arguments and reasons for what he says. Henry Moors Ethicks<sup>1</sup> cannot be admitted being grossly Armenian particularly in his opinione de libero arbitrio. Mr Cauch<sup>2</sup> he is prolix in his Didacticks and obscure in his Elenticks bringing in many heterogeneous things.

De Frize<sup>3</sup> his Determinationes Ontologick and Pneumatologic are nothing but mer theses and so too short and defective. His exercitationes are only miscelany questions. Le Clerk<sup>4</sup> is meerely scepticall and socinian. For Cartesius, Rohault<sup>5</sup> and others of his gang, beside what may be said against their doctrine, they all labour under this inconveniency that they give not any sufficient account of the other hypotheses and of the old

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1. Henry More (1614-1687), Cambridge Platonist. The work referred to here is his Enchiridion Ethicum (1667)
  2. Possibly Thomas Goveanus, author of Ars sciendi sive Logica nova methodo disposita (1682) and Logica Elentica (1683)
  3. Gerard de Vries (1648-1705), Professor of Philosophy at Utrecht. The works referred to here are probably his De catholicis rerum attributis determinationes ontologicae; De naturam Dei et humanae mentis determinationes pneumatologicae; Exercitationes philosophicae de fictis innatarum idearum mysteriis; Exercitationes rationales de Deo, divinisque perfectionibus
  4. Jean Leclerc (1657-1736), French philosopher who introduced Locke's philosophy to the Continent. His works are: Logica sive Ars Ratiocinandi (1694); Ontologia, sive de ente in genere et pneumatologia (1694); Physica, sive de rebus corporeis (1696)
  5. Jacques Rohault (1620-1672), Cartesian experimental physicist. His Traité de physique was a standard text for nearly 50 years.



philosophy, which must not be ejected, and weer never designed to be taught to students." 1.

Despite this show of unanimity, however, and despite the fact that many of the regents had connections with at least two, and sometimes more, of the Scottish universities, the debates which took place over the courses produced by the different universities as part of the joint course were lengthy and mostly acrimonious.

When discussing the failure of the 1640 attempts at uniformity, I suggested that the reason for the universities' disregard of the Commission lay in their fear of losing their autonomy. The same explanation holds good for the failure of the 1690s Commission. At the end of their letter to the Commissioners which I have just quoted, the Universities begged the Commission not to make any entrenchments on their several foundations. This fear of state intervention was obviously justified in view of the exceedingly detailed instructions for the running of universities which appear in the Commission reports.

Something of the universities' reaction to government interference can be seen in their replies to Section 17 of the Acts and Overtures of 1695. This section stated that: "Untill ther be ane printed course of Philosophie composed, the regents shall be obleidged yearly to produce and show in the beginning of the year to the Principall or Dean of Faculty...the dictats that he is to teach his students the year following, and that these dictats are and shall be subject and lyable to the amendments

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1. Manimenta, vol.2, pp.530-531

and correction of the Principall and Faculty of the Colledge." <sup>1.</sup>

Glasgow, Aberdeen and Edinburgh accepted this provision without demur, though Edinburgh did comment that it was not easily practicable. St.Andrews, however, as on other points, was strongly opposed to the motion, and interpreted it as interfering with academic freedom. The answer given by St.Salvator's is as follows:

"This wee judge hardly prestable; for (1) The Regents themselves cannot have all their thoughts collected and ready again that tyme; and it often falls out that some Masters are newly admitted, and upon short advertisement, besides many things may occur in cursu dictaminis that must incline them to add or vary; (2) Neither will any Principal or Dean of Faculty be able, in the tyme that can be then spared, to peruse and consider all that years lessons; but we think that Masters being admonished, they may be allowed to dictat upon their perill, and their notes may be sighted now and then as conveniency serves." <sup>2.</sup> St.Leonard's was even more outspoken in its response, declaring that: "it will be found altogether impracticable (1) Because it cannot be supposed that any Regent, at his first entry, shall have his notes that he is about to dictat fully perfected and complicated; nay, perhaps most parte newly entring upon that station dureing their whole first course may scarcely have so much time, from one conveniendum, as to prepare what he is to dictat another. (2) There is no man that diligently searches after truth in Philosophie, but will, as oft as he goes over a course in teaching, find occasion either to alter or add something, especially at such a time when there

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1. Evidence, vol.2, p.272

2. ibid., vol.3, p.219



are new opinions in Philosophie vented every day, which ought some way or other, at least to be taken notice of; and if false or heterodox, refuted as occasion serves. (3) Because in this University, there being but one Dean of the Faculty of Philosophie for both Colleges, whose (duty) by the statutes of the University it is to examine thinges of that nature, and approve or disapprove the same, it would be an insuperable task for him every year to read over seriously 6 courses, before we beginne to teach." <sup>1</sup>.

However, the universities could not afford to be too outspoken in defence of their right to govern their own affairs and determine their own courses, since sentiments of this kind might all too easily be construed as showing disaffection to the government, and result in dismissals of staff such as had taken place in 1689 and 1690 at the time of the Revolutionary Settlement. Their resistance tended to show itself in more roundabout ways, such as sheer apathy. Frequently meetings of the universities had to be cancelled, as insufficient delegates were present. St. Andrews very rarely seems to have been represented at the meetings. Three members of King's College - John Moir, Patrick Urquhart and William Black - protested against the meeting of the correspondents of the universities which was held in 1692 and refused to attend, on the pretext that such a meeting was seditious. And, of course, this apathy bore fruit, since the scheme was never implemented.

Given the need for discretion in their dealings with the Parliamentary Commission, one wonders if perhaps some of the

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1. Evidence, vol.3, p.221

statements in the universities' joint letter to the Commission are not perhaps the expression of policy rather than real conviction. The aim of the university representatives was twofold: (1) to convince the Commissioners of the desirability of a course of their own composition; in this way they would be able to retain some of their academic freedom; (2) in order to achieve this they had to obtain the good will of the Commission by proclaiming their orthodoxy and freedom from all dangerous and heretical views. In both these aims they presumably succeeded, since they were allowed to compose their own courses, though, as we have seen above, the Commissioners were dubious about the content of the notes which were being dictated in the meantime before the standard course should be ready.

The Commissioners' suspicions were well-founded, since the content of the dictates and theses of the 1690s does not entirely agree with the views expressed in the letter. For instance, despite the statement that "Henry Moors Ethicks cannot be admitted," More is quoted favourably by William Law of Edinburgh (1699), by John Tran of Glasgow (1699) and by George Skene of King's College (1702). Gerard de Vries, another author criticised in the letter, is quoted by Tran (Glasgow, 1699) and by Loudon (St. Leonard's, 1697). Leclerc is dismissed as being "merely sceptical and socinian," but his Physics are cited by Erskine (Edinburgh, 1703), who provided his students with Annotations on Leclerc's Physics, by Law (Edinburgh, 1705) and by Tran (Glasgow, 1699). As for "Cartesius, Rohault and others of his gang," although the universities were tending to abandon Cartesianism in the 1690s in favour of Newtonianism, Descartes's works were nevertheless



still quoted extensively. Thus, his treatise on the passions is well-nigh universally followed in the ethics lectures of the 1690s and the early 1700s, while his physics were also held in high esteem in some quarters, e.g. the Aberdeen contributions to the uniform course are thoroughly Cartesian, and William Law (Edinburgh, 1699) provided his students with a Summary of physical questions whose solutions are to be found in Rohault's Physics.

With the reports of the Commission of the 1690s we come to the end of statements concerning the curriculum as it operated under the regent system. However, it is worth quoting the rules of teaching which were drawn up at Edinburgh and Glasgow at the time of the changeover from the regenting to the professorial system, since these concern the early part of the 18th century and form a kind of pivotal point between the old and new methods of teaching. The changeover at the other universities was also accompanied by curriculum statements, but in each case it occurs too far on in the 18th century to concern us here.

The resolutions for Edinburgh are dated 1708 and are as follows:

1. All philosophy was to be taught in 2 years, as was the practice abroad.
2. There were to be only 2 philosophy classes in the college.
3. In the first philosophy class students were to be taught logic and metaphysics, in the second a compend of ethics and natural philosophy.
4. A chair of pneumatics and moral philosophy was established.
5. A chair of Greek was established <sup>1.</sup>

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1. Charters, Statutes and Acts of the Town Council and the Senatus, pp.164-165

The fixing of regents at Glasgow took place in 1727, when the following scheme was drawn up:

The master of the seni class shall teach logic and metaphysics, and that part of the pneumatics de mente humana.

The master of the baccalour class shall teach the remaining parts of pneumatics de Deo and moral philosophy.

The master of the magistrand class shall teach and go through a course of physics and experimental philosophy.<sup>1</sup>

It is worth noting that in both these schemes, contrary to the recommendations of the Commissioners in the 1690s, logic and metaphysics are linked, and physics is taught as one subject - a further indication of how little effect the Commission actually had on the university curricula.

Such, then, is the state of university teaching as presented in the reports of the Commissions, in Faculty minutes, Town Council records, and related documents. The course remained remarkably stable throughout the century, and in all the universities. The first year was spent on Greek, the second on logic, the third on ethics and the fourth on physics. Other subjects were fitted into this framework in various permutations, but the basic course remained unchanged. However, the content of the courses underwent a considerable degree of change - in some subjects more than others - and we shall now turn to an investigation of the dictates and theses in order to see how and when this happened.

In what follows I shall be dealing only with the subjects taught in the 2nd, 3rd and 4th years of the course. Although the 1st year course in Greek had a direct bearing on the philosophy

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1. Munimenta, vol.2, p.577



course, since it was designed to enable the student to read Aristotle in the original text, it is outwith the scope of the present study, which is concerned with the philosophy and science in the arts curriculum.

### Chapter 3

The first subject the student encountered when he entered the philosophy course was logic. As a legacy from scholasticism, no doubt, where logic featured so prominently, logic lectures and dictates form by far the largest bulk of the collections we possess.

Until, roughly, the early 1670s the lectures took the form of commentaries on Aristotle's text. From the middle of the 1660s references to Descartes appear in the lecture notes, but his teaching is rejected in favour of Aristotle's. By the late 1670s the universities seem to have adopted the Cartesian method, some regents adhering to it more wholeheartedly than others. With the 1690s came another shift of allegiance, mostly to Locke, either directly or indirectly, as in the case of Kennedy at Edinburgh (1694) and Gregory at St. Andrews (1690), who adopted Newtonian principia. Again, there are reservations on the part of some of the regents concerning some of Locke's teaching.

This summary perhaps suggests a neater pattern than in fact existed. There are many sets of lecture notes after the 1670s which are entirely Aristotelian, and many theses maintain Aristotelian positions. Usually the regents responsible for such lectures and theses were older men, who had started off their teaching careers by expounding Aristotle and therefore would be less likely converts to the new philosophy (e.g. James Pillans and John Wood of Edinburgh). Similarly Cartesianism did not fade out of the courses altogether in the 1690s; logic lectures and graduation theses based on Descartes continued side by side with



those containing newer material. However, the transitions outlined above do hold true in broad terms.

It should be noted, though, that the subject matter and the organisation of the lectures remained heavily influenced by Aristotle and the scholastic traditions to the end of the 17th century, and indeed into the beginning of the 18th century. The "Porphyrian tree" is reproduced or referred to in almost every set of lecture notes we possess, and his theory of the predicables is well-nigh universally accepted. The views of scholastic commentators on Aristotle continue to be discussed - frequently, it is true, less exhaustively towards the end of the century, but even this is by no means always the case. The debate form also predominates in the organisation of material. One feels that Descartes and others have been fitted into a framework which is basically Aristotelian (although there is a good deal of Aristotelianism inherent in Descartes's philosophy, and one should beware of drawing too sharp a distinction between Aristotle and Descartes in the courses). It is interesting that, when one is reading the graduation theses, one frequently has the impression that they contain more advanced views than were being voiced in the dictates of the same period. However, one usually finds that the philosophical positions as expressed in the theses tally fairly well with those expressed in the dictates. The difference is that in the dictates they have been absorbed into a strongly Aristotelian exposition of the subject, whereas in the graduation theses they stand on their own.

Since so much of the logic in the dictates is taught by the scholastic method of setting down the opposing viewpoints

of different authorities, I shall list briefly the main authorities referred to by the regents, before describing the dictates and theses. Moreover, since the same authorities tend to be referred to in the metaphysics, ethics and physics teaching, this summary will serve as a point of reference for the following chapters as well.

The scholastic writers mentioned in the dictates and theses can be classed in three groups. In the first group are Aquinas, Scotus, Occam and other medieval scholastics, whose names appear in virtually every set of logic dictates and theses. Discussion of their views was considered an indispensable part of the course. The remaining commentators are all Renaissance Aristotelians, but Charles Schnitt has recently shown that there were considerable differences between the various Renaissance commentators on Aristotle, some of whom were content with more or less rewriting medieval textbooks, while others incorporated into their commentaries much that we now think of as tending towards a more modern approach.<sup>1</sup> We can therefore divide these commentators roughly into traditional Aristotelians and those whose views were more modern.

In the first category may be listed Cajetan, Toletus, Fonseca, Ruvius, Mendoza, LeRees, Franciscus Bonae Spei, Smiglecki and Keckermann. Cardinal Cajetan (1468-1534) is best known as an interpreter of the thought of Aquinas, and his logic is the standard Aristotelian syllogistic. The views of Francis Toletus (1532-1596) are also mainly Thomistic, while

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1. Charles B. Schnitt, "Towards a reassessment of Renaissance Aristotelianism," Journal of the history of science, 11 (1973), pp.159-193



Petrus Fonseca (1548-1597) was known as the "Aristotle of Coimbra." Antonius Ruvius (1548-1615), Petrus de Mendoza (1578-1651), Francis LeRees, Franciscus Bonae Spei (i.e. François Crespin), and Martin Smiglecki (157-1618) all seem to have belonged in the older tradition of Aristotelianism. The works of Bartholomeus Keckermann (157-1609) were widely used in the 17th century as standard textbooks for scholastic teaching. On the other hand Zabarella, Burgersdijk, Compton, Hurtado, Arriaga, Derodon, Suarez, Pontius, the Jesuits of Coimbra, Vives, Campanella and Telesius may be listed as "moderns." Zabarella (1533-1589) was a Renaissance Aristotelian who used the Greek text of Aristotle and, as William Edwards has demonstrated,<sup>1</sup> his works show a considerable amount of Renaissance humanism in their approach to Aristotle. One of Zabarella's most important works, Opera logica, published at Venice in 1578, contains a section de methodis which is one of the earliest treatments of the modern concept of scientific method under that name. Franciscus Suarez (1548-1617), a Spanish Jesuit, gave an original interpretation of scholastic doctrines in his philosophy. Francis Burgersdijk (1590-1635) was professor of logic at Leiden; although a Protestant, he drew predominantly from Catholic sources in his writings, particularly from Suarez, Pereira and Toletus, and the Coimbra commentaries. In his Institutionum logicarum libri Burgersdijk sought a compromise between Aristotelian and Ramist logic. Thomas Compton was an English Jesuit (?1593-1666) who taught philosophy at Liège, while David Derodon (1600-1664) was a professor

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1. William F. Edwards, "The logic of Iacopo Zabarella (1533-1589)," DA 21 (1961), p.2745

successively at Die, Orange and Nîmes. Caspar Hurtado (1575-1646), Rodrigo de Arriaga (1592-1667) and Francisco de Oviedo (1601-1651) were all Spanish Jesuits, whose works appeared for the first time in the 17th century. Hurtado, who taught at the University of Alcalá de Henares, was among the first to depart from the method of St. Thomas and follow a system of his own, while Arriaga was a leading representative of the school of Suarez. Pontius contributed to the Scotist development of the 17th century. The works of the Coimbra writers show a fusion of the humanist approach to Aristotle with the long established scholastic approach. Juan Luis Vives (1492-1540) was a Spanish humanist, who taught that inordinate attention to logical analysis must be curtailed; instead students were to be constantly reminded of the empirical origins of useful knowledge. Tommaso Campanella (1568-1639) was the first philosopher, antedating Descartes, to assert the need of positing universal doubt at the beginning of his system; he was attacked by the Church on charges of heresy in his works. Bernardino Telesio (1509-1588) was called "the first of the moderns" by Francis Bacon, who claimed that Telesio was the first to raise the banner against Aristotle; his modernity consists largely in the emphasis he placed on sense experience in the study of nature.

With this list of the main authorities cited by the regents, let us now turn to the dictates and theses.

The dictates of lectures in logic at Edinburgh with which I shall be dealing span the years 1628-1700. The earliest dictates consist of commentaries on Aristotle's works. In 1628 John Brown



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 lectured on the Posterior Analytics. Four years later Robert Rankin offered a Compendium of Peripatetic Doctrine on the Structure of Syllogisms and gave straightforward expository commentaries on Aristotle's universal logic, Porphyrius's Isagoge, and Aristotle's Categories, Topics, Prior and Posterior Analytics and Sophistics.<sup>2</sup>  
 Zabarella is an author frequently cited in Rankin's dictates.

References to writers in the scholastic tradition continued to feature prominently in logic lectures until well on in the century. In 1652 Thomas Craufurd provided his students with a Compendium doctrinae Thomae Aquinaticae de sophisticis elenchis.<sup>3</sup>  
 He quotes Zabarella extensively, also Smiglecki.

With John Wishart's lectures of 1660<sup>4</sup> we have the first extant set of dictates for Edinburgh which are not commentaries on the works of Aristotle. However, the Aristotelian and scholastic influence is still pervasive. When defining terms used in logic, such as affectio, causa, conclusio, demonstratio and principium, Wishart gives the definitions of the Thomists, the Nominalists and of Aristotle. He quotes Compton, Zabarella, Smiglecki, Franciscus Bonae Spei, Scotus, Aquinas, Hurtado, Arriaga, Derodon, Oviedo, Pontius and the Jesuits of Coimbra, to mention only a few. Wishart discusses the conflicting interpretations of these Aristotelian commentators at some length, and gives his reasons when he disagrees with them. There is another set of dictates by John Wishart, dated 1666,<sup>5</sup> where reference is made to Ramus's Libellus de inventione and his work on Dialectic, also to noster

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1. NLS - Ms.9381.

2. EUL - Dc.8.168

3. EUL - Dc.5.122

4. EUL - Dc.8.114

5. GUL - Ms.Ku.41

Duncan, who is probably Mark Duncan (1570-1640), born in Roxburghshire and subsequently a lecturer in philosophy at Saumur; in 1612 he published a work entitled Institutiones logicae. Burgerodijk too is recommended as an authority. There is a brief mention of the Cartesian division of nature into matter and movement and spirit, but this theory is dismissed as insolens. We have further lectures given by Wishart dated 1674,<sup>1</sup> but these do not seem to differ much from his earlier ones; the subject matter and the authorities quoted are the same.

With the notes of lectures delivered by James Pillans,<sup>2</sup> dated 1662, we are back to commentaries on Aristotle and on Porphyrius's Isagoge. Like Wishart, Pillans quotes Zabarella frequently. He sometimes contradicts earlier commentators on Aristotle; e.g. in the section De specie he claims that the Thomists are wrong in classifying single angels as single species, and in the section De differentia he states that the opinion of Scotus is absurd which claims that "genus always differs from species by the very nature of things."

The lectures which William Paterson delivered in 1668<sup>3</sup> entitled De argumentationis fabrica show the importance which continued to be attached to the syllogism as an instrument of reasoning. Paterson defines argumentatio as "the way by which we know whereby one thing is deduced from another through some particular illustration," and then proceeds to sections On the nature of syllogism, On enunciation, On the form of syllogisms, On the canons of syllogisms, with appendices on the structure and varieties of syllogisms.

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1. St.A - Ms.1949

2. EUL - Do.6.6

3. EUL - Do.7.90



Andrew Massie's lectures on logic, delivered 1680-81<sup>1</sup>, show a movement away from Aristotle. In his introduction Massie states that "for a solid reliable method of acquiring knowledge of things, we know of none more deserving of praise than that established by Descartes." He also mentions Bacon's Novum Organum, but disagrees with some of its theories. Massie states that the great preoccupation of philosophers is with criteria of truth; according to Descartes, truth is whatever appears true and evident, and while this definition is not without difficulties, it is the best we have. The lectures are entitled Logic set out by a new and easy method according to Peripatetic and Cartesian principles, and logic is divided into four parts: apprehensio, iudicium, discursus and methodus, corresponding to the operations of the mind.

Herbert Kennedy's lectures of 1687-88<sup>2</sup> continue the allegiance to Descartes first seen in Massie's lectures. In his introductory remarks Kennedy gives a list of outstanding philosophers, ancient and modern. Among the modern ones Kennedy says that the most important are those who have been concerned with mathematics and physics, and the chief of these is Descartes, "that supreme glory of France." However, the lectures themselves rely heavily on Aristotle and Porphyrius, and Kennedy quotes Aristotle's definitions again and again.

Alexander Cunningham's lectures of 1689<sup>3</sup> follow the fourfold division seen in Massie's lectures, and are also Aristotelian for the most part. The Porphyrian organization of logic is followed, and Cunningham concludes with a section on the

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1. EUL - La.III.154

2. EUL - Dc.8.132

3. St.A - Ms.36237

logic of Thomas Compton. However, the history of philosophy with which Cunningham begins his lectures shows that he was very much aware of more recent developments in philosophy. He starts by listing scholastic writers - Aquinas, Albertus Magnus, Duns Scotus and William of Occam. These writers, Cunningham states, cast a thick fog over philosophy until the Reformed Religion cleared it away. Ramus, Vives, Campanella and Telesio introduced a purer, freer philosophy. Cunningham goes on to list 17th century writers who tried to lay new foundations for philosophy - Bacon, Comenius and Descartes. Tribute is also paid to Digby, Cassendi and Robert Boyle, and Charles II receives praise for having founded the Royal Society to triumph over ignorance and further human knowledge. Cunningham comments on how philosophy flourishes throughout Europe, especially among the French and Germans, and he notes the latter nation's fondness for experimenting. He ends his account with a statement which appears as a leitmotif throughout 17th century dictates and theses: that there is great divergence of opinion among philosophers, and the best philosophers now do not follow rigidly in the steps of any one authority, but approach the writings of them all critically, concerned only for the truth (cf. the statement at the beginning of George Fraser's 1695 theses (King's College): "Reactionary thinking is one of the main obstacles to the advance of science; thus Aristotle exercised a stuporous effect for centuries on schools and academies. Indeed anyone who departed from Aristotle, or constructed a new philosophy was considered a heretic. Many philosophers of the present age have the same attitude towards Descartes. However, those who truly apply their minds to philosophy should not be



a slave to any one system.")

The lecture notes of William Law, delivered in 1691<sup>1</sup>. and again, with very little alteration, in 1698,<sup>2</sup> and 1700,<sup>3</sup> contain a similar summary of the history of philosophy before continuing with an Aristotelian exposition of logic. In addition to the authorities mentioned by Cunningham, Law refers to Locke's categorisation of philosophy.

We have another set of lecture notes dictated by Herbert Kennedy, this time dated 1696<sup>4</sup>. they substantially repeat the earlier lectures, but to his introductory remarks on the history of philosophy Kennedy has now added the name of Newton. However, he takes a very unscientific and theologically orientated view of the achievements of Descartes, Cassendi, Newton and other modern philosophers. Far from recognizing the revolutionary nature of their thought, Kennedy refers to them as "restorers rather than inventors," inasmuch as three stages can be discerned in the progress of knowledge: (1) perfection, at the world's beginning; (2) a falling away, before the flood; (3) recreation or restoration, which has gone on ever since.

At the end of his lectures, Kennedy says that he is not going to include a section on ideas, which is usually tacked on to logic courses; the subject has been dealt with by Cassendi and Descartes on opposing sides.

The graduation theses, reflecting the content of the courses, give similar evidence of the pattern of logic teaching at Edinburgh in the 17th century. Aristotle is predominant at

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1. NLS - Adv.ms.22.7.2

3. GUL - Ms.Mu.39

2. NLS - Ms.183

4. NLS - Adv.ms.22.7.5; 5.2.4

the beginning, and indeed well into the middle of the century.

In the theses for 1600 John Adamson blames the Ramists for belittling logic, while the 1601 theses of James Knox state that Aristotle's logic is perfect. Until the 1660s the Theses logicae are entirely based on Aristotle, with frequent references to Porphyrius's system of predicables. When other names are mentioned they are those of Aristotelian commentators, such as Zabarella. In the Theses philosophicae of 1646 Thomas Craufurd explains the scholastic use of logical terms, while at the end of his Theses logicae of 1661 John Wishart lists various problems which arise in logic, among which are questions familiar to scholastic discussions, such as "Num logica sit scientia, an ars, an habitus instrumentarius," and "Num conclusio sit pars syllogismi." Wishart's theses of 1668 are still Aristotelian; he states that Peripatetic logic is the best, and praises Duncan<sup>1</sup> and Balfour<sup>2</sup> as commentators on the Organon, but for the first time in the Edinburgh Theses logicae we have a reference to a contemporary philosopher, Hobbes. After condemning Hobbes's dismissal of logic, Wishart outlines his arguments.

Up to the 1670s the Theses logicae, ethicae etc. all constitute separate sections. Invariably the Theses logicae come first, and are mostly considerably longer than the other sections, reflecting the importance placed on the subject in the scholastic method of teaching. After this date the Theses usually appear in a single sequence, with topics from logic, metaphysics, ethics

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1. i.e. Mark Duncan, cf. *supra* p.67

2. Robert Balfour (?1550-?1625)



and physics occurring in no particular order. This different arrangement seems to coincide with the introduction of Descartes to the theses. Thus in 1671 William Paterson discusses Descartes's statement "quicquid ego clare et distincte percipio, illud fieri potest," and he also refers to Bacon's claim that "iudicamus ab analogia nostri, non universi." The following year Wishart gives a survey in his theses of the exponents of logic. He begins by stating that Descartes's Cogito ergo sum is not the first principle, but a logical deduction from first principles. He then claims that the logicians of the present age have added nothing very useful to what was already known: Legrand, Clauborg and Gassendi have made a very slight contribution; Hobbes's Computatio comes into the category of arithmetic rather than logic; Ramus's Dialectic is of little use, and even less useful are the works of Raymond Lull and Athanasius Kircher; Henry More's Enchiridion contains nothing new of any importance. Wishart concludes that Aristotelian logic is the most useful, providing it is not allowed to degenerate into empty verbal quibbling; what Owen Feltham<sup>1</sup> says against logic (Resol.55, p.85 & 86) is actually against the degenerate sophists of the schools. Even Descartes admits the validity of Aristotelian logic. Finally, Joseph Glanville's letter to Henry Stubbs is quoted, in which Glanville says that universities are the great sources of enlightenment in the world, and that dialectic and metaphysics should be taught there for the sake of theology.

Paterson and Wishart cannot be said to be very progressive

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1. Owen Feltham (1602?-1668), author of Resolves, a series of moral essays, first published in 1620 with later editions appearing throughout the 17th century

in their conclusions, but at least they are aware of contemporary philosophical thought. Other regents, however, show no evidence of being acquainted with any authority other than Aristotle in their theses. Wood and Pillans preserve the old form of divisions into Theses logicae, ethicae etc., and this conservatism is echoed in the content of the theses. However, Wood died in 1679 and Pillans resigned in 1681; after their departure logic as such features less and less in the theses; Cartesian theories are now not only discussed, but accepted. In the theses of 1682 Gilbert McMurdo's rules for logic are Cartesian (viz. one should begin from simple concepts and progress to more advanced ones; one should not admit anything as true until it has been thoroughly proved, etc.). The following year Massie is even more pro-Cartesian. He says that we can never be too grateful for Descartes's Cogitationes and after expounding Descartes's dictum that we should question all sense perceptions, he defends Descartes against the charge of denying God's existence.

Equally Cartesian are the theses for 1684 of Alexander Cockburn. He censures the teaching of the schools, which was concerned with verbal quibbles and caused pupils to wander far from the truth. In Cockburn's opinion the method most conducive to gaining knowledge is to train the mind from early years to acquire clear and distinct ideas, and he quotes Duhamel's<sup>1</sup> recommendation of the study of mathematics. For clear perception of things we must distinguish between imagination, sense and pure

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1. Jean Baptiste Duhamel (1624-1706), French physicist, philosopher and theologian; first secretary of the French Academy of Sciences from 1666 to 1696; notably contributed to the diffusion of Cartesian philosophy in France



intellect; again Duhamel is quoted, together with Bacon. In his next set of theses (1688) Cockburn refers in addition to Leibniz, and his division of knowledge into "obscure and clear."

The same theories are repeated by Robert Liddordale in 1685, and he explicitly rejects Peripatetic logic with its multiplication of terms.

Herbert Kennedy in 1686 dismisses as useless questions such as "on the kind and object of logic;" "on universals;" "on metaphysical degrees" etc., quoting instead the four precepts given by Descartes in his Method. The theses of 1694 show a change of position; Kennedy has completely abandoned Cartesian ideas, and has adopted Newtonian principia. I quote from the beginning of Kennedy's theses: "We are setting out an example of genuine philosophy, or rather method, by which all hypotheses are abandoned, and a true path is paved to philosophy. Descartes gave us a hypothesis, i.e. a fiction, not a philosophy; Newton has shown us a philosophy, not a hypothesis." Probably Locke's Essay concerning human understanding, rather than Newton, was Kennedy's primary source; Locke based his views partially on Newton's scientific method.

By 1692 a new regent's name appears at the head of the theses - Alexander Cunningham, who was appointed in 1689 on the death of Alexander Cockburn. Cunningham's definitions of logic are less hedged around with scholastic terminology than the Theses logicae of the earlier part of the century. Idea is defined as "the first thought of the human mind" or "the form under which an object is represented to the mind." The second part of logic, iudicium, is arrived at by comparing ideas.

Discursus is "union or separation of the subject and the attributes of the conclusion;" and finally the scope of methodus is "not so much to perfect the reason, as to use it as an instrument for discovering the truth."

We have graduation theses for Edinburgh up to 1705, but after 1694 logic features very little in them, reflecting by implication the decline of scholasticism in teaching and possibly the influence of Locke.

For Glasgow we have student notebooks containing lecture notes on logic for the period from 1637 to 1714. On the whole they are more Aristotelian, and contain fewer references to modern philosophers than the Edinburgh dictates. In 1659-60 Andrew Burnet commented on Aristotle, with references to Fonseca, the Coimbra commentators and Compton.<sup>1</sup> William Blair's lectures of 1665<sup>2</sup> are similar, being commentaries on Porphyrius's Isagoge and the whole of Aristotle's philosophy. The authorities quoted include Cajetan, Hurtado, Toletus, Burgersdijk, Mendoza, Arriaga, Oviedo, Suarez, Zabarella and Smiglecki. In his introductory section, which contains a history of philosophy, Blair first lists the Church fathers (e.g. Clement, Alexander, Origen) and scholastics (Aquinas, Scotus, Occam) and then goes on to refer to more recent philosophers, the principal of whom are Jesuits on the one hand, and representatives of the Reformed Church, such as Joseph Scaliger, on the other.

A set of lecture notes taken down in 1667<sup>3</sup> contains a passing reference to Heereboord and Descartes, although Descartes's

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1. NLS - Adv.ms.22.6.1

2. GUL - Ms.Gen.355

3. EUL - Dc.8.22



theories are not adopted. However, the lectures are still commentaries on Aristotle's texts, and discuss rival scholastic interpretations at considerable length; but it is worth noting that the lecturer often agrees with the most recent commentators, e.g. the scholars of Coimbra, rather than with earlier teachers of the Scotist and Thomist schools.

The notes dictated in 1675 by Thomas Nicholson<sup>1</sup> cast an interesting light on the reasons why Aristotle continued to predominate so late in the university courses, even when some regents were declaring their allegiance to Descartes in the preliminary remarks to their lectures and in their theses. Nicholson begins by praising those who opposed Peripatetic teaching, such as Ramus, Gassendi and Descartes. However, logic is very necessary, as even Descartes admits, and Nicholson proposes to follow the Aristotelian method in his lectures, as it is the best known. He then proceeds to give commentaries on Aristotle's books of logic and on Porphyrius.

This discrepancy between the professed opposition to Aristotle and the actual subject matter of the lectures appears again in John Tran's lectures of 1678.<sup>2</sup> Tran gives the usual introductory history of philosophy, and traces the Aristotelian tradition down to the scholastics who, he claims, more or less equated Aristotle with the apostle Paul. It was left to the Reformed Church to clear the Aegean stable which the scholastics had created by their commentaries. He recommends Descartes's system of logic, referring his pupils to the Institutiones and

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1. NLS - Adv.ms.5.2.2

2. EUL - La.III.715

the remarks of Antony Legrand. However, the lecture notes themselves are very traditional, being still commentaries on Aristotle's works with quotations from Aquinas, Cajetan, Oviedo, Zabarella, Smiglecki, Compton, Suarez, Fonseca, Hurtado, Ravius, the Coimbra commentators, Burgersdijk et al.

There is no change in Tran's lecture notes of 1661<sup>1</sup>, 1686<sup>2</sup> and 1690<sup>3</sup>, except that he states in them that although he respects Descartes's opinions, the weight of authority of centuries is against Descartes. However, although he felt unable to incorporate Descartes into his actual lectures, Tran has by now added an Appendix de vita, methodo et meditationibus Cartesii.

Tran continued to deliver virtually the same set of lectures until 1702.<sup>4</sup> In the lectures of this date he mentions the criteria of truth given by Descartes and Malebranche,<sup>5</sup> but is unwilling to commit himself to an opinion on what truth is.

The lecture notes of John Doyd (1691<sup>6</sup> and 1695<sup>7</sup>) and John Law (1692<sup>8</sup> and 1700<sup>9</sup>) are in the Aristotelian tradition, again with Cartesian overtones. Law's statement of the pitfalls he hopes to avoid gives us an insight into what was considered the ideal in lectures, even though Law himself does not always quite succeed in achieving his aims. He resolves not to follow

1. GUL - Ms.Mu.227

2. NLS - Ms.9384

3. GUL - Ms.Mu.225;

Ms.Mu.214

4. There is a set for 1695-96 - GUL - Ms.Mu.224 and for 1702 - EUL - Dc.8.57

5. Nicolas Malebranche (1638-1715); his De la recherche de la vérité appeared in 1674; Cartesianism and the philosophy of Augustine were the dominant influences on his writings

6. EUL - La.III.720

7. EUL - Colin Campbell Collection

8. EUL - Dc.8.18

9. GUL - Ms.Gen.412



Aristotle or any other authority blindly, without regard to what the object itself or right reason dictates, not to quibble over terms, not to give imprecise terms to certain confused ideas, not to use words in different senses at different times, and to report the views of others faithfully when dealing with controversies.

When we come to Gershom Carmichael's lectures (for which we have sets of notes dated 1697<sup>1</sup> and 1708<sup>2</sup>), the difference between them and the other logic lecture notes is immediately noticeable. The four part division of the subject is adhered to, and the material is the same as that of the other lectures, but it is presented so much better. The authorities Carmichael cites are often recent ones; he gives a clear, concise exposition of their arguments and he states his own views firmly. In his prefatory remarks Carmichael analyses what was wrong with the scholastics: they mixed up philosophy with theology, and overburdened it with arguments and empty verbal formulae, as a result of which it became involved in a hopeless labyrinth. The numerous commentators on Aristotle had clouded the central issues. Carmichael is critical of the modern tendency to doubt everything in philosophy, and does not think it necessary to go as far as Descartes. However, he speaks with favour of Descartes, along with Bacon, Malebranche and Locke, whom he refers to as outstanding philosophers of the present age. As a result of their efforts philosophy is not confined to the schools and academies, but is cultivated by all mortals of intelligence.

In the first section of his 1697 lectures, de apprehensione,

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1. NLS - Ms.2741

2. GUL - Ms.Mu.67

Carmichael discusses Locke's theories of ideas as given in his Essay concerning human understanding, explaining what Locke means by ideas modorum, substantiarum et relationum, and expresses his intention of following Locke. However, he is not entirely uncritical; in his 1708 lectures Carmichael says that he thinks Locke's four ways of comparing ideas are an over-simplification. Other modern authors whose work Carmichael praises are John Wallis, professor at Oxford and member of the Royal Society (he refers the student to Wallis's accuratissima logic, i.e. his Institutio logicae ad communes usus accommodata) and Claude Fleury (his Traité du choix et de la méthode des études, first published at Paris in 1686).

When he is discussing propositions in 1697, Carmichael expands on the subject of categories at great length, but feels he must apologise for this; he has no wish to instil a spirit of pedantry into his students by this long description, but the only way in which he can evaluate the worth of each proposition is by knowing the category to which it belongs.

In his 1708 lectures Carmichael claims that logic is divided into two types of thinking: apprehensio and iudicium. In the actual notes Carmichael still retains the fourfold division for presenting his material, but in the scheme presented at the beginning, the section de discursu becomes a part of the main section dealing with iudicium, and the section de methodo is relegated to an appendix. The change is perhaps not very great, but it is surely a significant one, since the syllogism (always discussed under the heading de discursu), the cornerstone of Aristotelian and scholastic logic, no longer appears as a



principal factor in Carnichael's logic.

The latest set of logic dictates we have for the regenting period at Glasgow are those delivered by John Loudon in 1712<sup>1</sup>; and repeated in 1714<sup>2</sup>. In his introductory remarks Loudon discusses whether philosophy exists. Descartes inclined to the sceptical position with his theory of universal doubt, but this standpoint was rightly attacked by Cassendi, Voet and de Vries. Loudon says that Descartes did not have much to offer when it came to philosophy, though later on in the notes he maintains that the best criterion of truth is that given by Descartes, whose views are to be preferred to those of Malebranche. John Locke's theories about the real essence of things are also cited. The organisation and the material of the notes are still basically Aristotelian, but there is far less in the way of references to scholastics than in lectures of the previous century, and the whole presentation is more concise. It is perhaps worth noting that both Loudon and Carnichael had come to Glasgow from St. Andrews, where they had previously been regents.

The paucity of surviving Glasgow theses means that we cannot compare them with the dictates for evidence of the university courses as well as we can in the case of the other universities. However, the content of the few that we do have is as follows. The theses for the graduations of 1646, 1663, and 1671 are Aristotelian and scholastic. There is then a gap before John Boyd's theses of 1693 in which, after defining logic as "the science which directs the operations of the mind in the

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1. GUL - Ms.Gen.406

2. GUL - Ms.Gen.71

discovery of truth," he describes the triple operation of the mind - apprehensio, iudicium and discursus. John Law's definition of logic (1698) is similar to Boyd's: "Logic is essentially concerned with the method by which we attain knowledge." Law thinks that logic and metaphysics are particularly useful to the theologian and the lawyer. We are fortunate in possessing Gershom Carmichael's theses of 1699 and 1707, in which he puts forward the same ideas as we noted in his dictates.

By comparison with what is available for Glasgow and Edinburgh I have been able to find very few lecture notes for Aberdeen. Those which relate to Marischal College cover the years from 1688 to 1707, and are all the lectures of one regent - George Peacock. Peacock's 1688 lectures<sup>1</sup> are prefaced by a picture of Descartes, with an inscription where Descartes is heralded as the philosopher who brought truth to light, after it had remained hidden in darkness for centuries. However, although there is some evidence in the logic lectures of Peacock's allegiance to Descartes, Aristotle is the presiding spirit. Peacock's lectures for 1690,<sup>2</sup> 1694<sup>3</sup> and 1695<sup>4</sup> are duplicates of his 1688 ones. The 1707 lectures<sup>5</sup> I shall return to below when discussing the lectures given in King's College.

We have lecture notes for King's College for the years 1666-1717. There is an earlier set of dictates, consisting of commentaries on Aristotle's logic, ethics and physics, which was taken down in 1612-13 by Lord Balmerino from the lectures of a

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1. AUL - M.182

2. NLS - Ms.9387

3. St.A - Ms.1503

4. NLS - Ms.9388

5. AUL - M.175



David Leitch.<sup>1</sup> The date is somewhat puzzling, as David Leech was regent at King's College from 1628 to 1636, but despite this discrepancy we can probably assume that these lecture notes represent university teaching at Aberdeen in the early years of the 17th century. The 1666<sup>2</sup> and 1669<sup>3</sup> notes, probably dictated by Patrick Sandilands, are commentaries on Aristotle's books of logic. In the lectures dated 1677 Robert Forbes has abandoned this practice, and follows instead the fourfold division of logic.<sup>4</sup> This notebook has as its title Logica novantiqua practico-speculativa quadripartita. However, there appears to have been nothing much in the way of innovation after this. What is more, the actual lectures seem to be the same; the lecture notes for 1691<sup>5</sup> contain too many verbal similarities to James Urquhart's lectures of 1717<sup>6</sup> for there not to be a connection between them. The earlier lectures probably served as a model for the later ones, though Urquhart cuts out a lot of material as being superfluous to logic; for instance, he relegates the sections on predicaments and ens rationis to metaphysics.

Not only are the same lectures used within the one college, but we have evidence of an identical set of lecture notes being used at Marischal and King's. George Skene's Cursus logicus of 1702<sup>7</sup> is duplicated by Peacock's lectures at Marischal in 1707, which differ however from his earlier lectures given in the 1680s and 1690s. We have already seen that Marischal had a uniform course at the time of the 1690s Commission;<sup>8</sup>

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1. EUL - LA.III.155

2. nLS - Ms.2816

3. AUL - K.208

4. AUL - K.235

5. AUL - K.152

6. AUL - K.158

7. AUL - K.154

8. cf. *supra* p.26

obviously the idea of uniformity was extended to the two colleges, possibly as a result of the Commission.

When we turn to the theses, we get a much more comprehensive picture of what was being taught at Aberdeen. The earliest Theses logicæ are thoroughly Aristotelian. In 1622 Alexander Lunan of King's College quotes the Coimbra commentators, Ruvius, Fonseca, Zabarella and Keckermann, and praises the syllogism as an "eternal monument to Aristotle's genius." William Lealey, also of King's College, cites numerous scholastic commentators in his theses of 1625, but the most frequently mentioned are Zabarella and Keckermann. Zabarella is also quoted by John Seton of Marischal College in 1631, who prefers his views to those of the earlier commentator, Cajetan. In 1635 David Leech of King's College praises Arriaga, whom he refers to as "the best versed in philosophy of all the neoterics of our century," but is less enthusiastic about Smiglecki, who "wanders around the subject too much." Leech begins his theses with an introductory thesis generalis in which he maintains that philosophy aids theology, and that logic, as the first part of philosophy, is particularly necessary in theology. The following year Leech's allegiance to Aristotle is seen even more clearly when he declares that Aristotle's definition of the syllogism is the most perfect definition possible.

The first mention of Descartes to appear in the Aberdeen theses is in Andrew Cant's theses of 1653 (Marischal College). The Cartesian universal doubt is viewed with distrust, however, and the authorities Cant quotes are mainly scholastic, e.g. Oviedo, Hurtado, Arriaga, Compton, the Coimbra commentators,



though he also quotes Ramus. Attacks on Jesuit teaching, already seen in the Theses logicæ of some of the earlier regents, such as Alexander Lunan (1622) and John Lundie (1626), are pursued with great vigour by the Presbyterian Cant.

George Meldrum's theses of 1659 (Marischal College) are still based on the writings of scholastics, but he has some pertinent comments to make about their works. Almost all recent philosophers, e.g. Fonseca, Arriaga, Oviedo, Compton, are agreed that logic is a practical discipline, Meldrum says; but their writings are more speculations on the nature, object and characteristics of logic; you will be hard put to it to find one rule for defining, dividing etc. in their lengthy commentaries; they neglect the task of providing a systematic logic for students.

1669 is the next date when references to modern philosophers such as Descartes appear; again they are in Marischal College theses, presented by Alexander Alexander. The style in which these theses are written is quite different from the style of the other theses; they have a refreshingly unscholastic vigour as Alexander launches his frequently virulent attacks on Descartes, Heereboord, Regius and Hobbes. Of Descartes's method Alexander states that Descartes is being exceedingly rash when he says that we are men solely because of our reason, since it is through the same reason that we sink in the most unworthy fashion to uttering insipid rubbish. Alexander thinks that of all the realms of knowledge it is logic that gives philosophers most scope for causing confusion, and no-one has yet appeared who is able to give us a good system of logic.

By 1675 Cartesian ideas had been adopted in the King's

College theses of George Middleton. Aristotle's logic is condemned, with its "infinite rules about syllogisms and its useless precepts concerning ens rationis, universals etc." Middleton accepts the Cartesian method of doubt, but thinks that it should be applied only to the contemplation of truth, not to life, in case we spend so long resolving our doubts that the opportunity to act passes.

Cartesianism still had at least one opponent in Robert Forbes (King's College), who attacks the Cartesian method of doubt in his theses of 1680 and 1684, and upholds Aristotelian logic. The 1680 theses are entitled Philosophical theses to uphold the truth of the old method of philosophy against the treacherous, novel and heterodox Cartesian philosophy.

However, most of the regents of this period seem to have accepted Descartes's ideas. John Buchan (King's College, 1681) deplores the endless quibbling of the Peripatetics and praises Descartes. George Skene (King's College, 1688) describes Peripatetic philosophy as being nothing but a shadow now which, "being enmeshed in a din labyrinth of distinctions, makes the essences of things even more complicated." Descartes, on the other hand, has shown us the only way of attaining certainty. Skene defends Descartes against the charges of atheism and scepticism levelled against him by such as Forbes.

By the 1690s the attacks against the Peripatetics have lost something of their earlier vehemence (e.g. George Fraser (King's College, 1691) says that logic should not be dismissed as useless; it trains us to order our thoughts and make deductions; in 1695 Fraser adds that Aristotle's logic contains



much that is good; it is only the perversity of its practitioners which gives it a bad name), but Descartes is still considered to have provided the best method. Alexander Moir (Marischal College, 1691) is acquainted with Locke's theories, but thinks that the idea of the mind being a tabula rasa is false, since we have an innate concept of God. In addition to Descartes, Bacon is held up for admiration by one of the regents - George Peacock (Marischal College) in his theses of 1693; the Novum Organum is quoted several times.

Locke's writings win acceptance in George Skene's 1696 theses, where the tabula rasa theory is praised. They are also followed by James Urquhart (King's College, 1710), who describes Locke's ideas at some length. However, the adoption of Locke's teaching was not universal. George Fraser is still very much a Cartesian in 1706, and George Peacock uses the same arguments against Locke in 1711 which Alexander Moir put forward in 1691. William Smith (Marischal College, 1712) is equally opposed to Locke, as can be seen in his statement that "those philosophers show a very inadequate understanding of the mind who imagine it to be like a tabula rasa, devoid of any innate knowledge."

The teaching of logic at St. Andrews follows much the same pattern as at the other Scottish universities. We have lecture notes for St. Andrews covering the period from 1643 to 1723.

In 1643 the regent James Sharp, later to become the Archbishop Sharp who played such a large part on the Scottish political scene, lectured at St. Leonard's College on Aristotle's logic and Ramus's Dialectic.<sup>1</sup> Thomas Glegg's lectures of 1647,<sup>2</sup>

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1. St.A - Ms.BR.85.55

2. EUL - Do.5.45, 45\*

delivered at St. Salvator's College, are again commentaries on Aristotle's logic books and on Porphyrius's Isagoge. Glegg is concerned with scholastic debates on subjects such as ens rationis. Among the authorities cited are Hurtado, Scotus, Smiglecki, Zabarella, Arriaga, Francis LeRees, Suarez, Mendoza and the Coimbra commentators.

For the 1660s and 1670s we have student dictates for St. Leonard's College only, so cannot really pronounce on the practice at St. Andrews University as a whole. However, at St. Leonard's commentaries on Aristotle and Porphyrius continued. In his lectures dated 1669, John Hay quotes Hurtado and Compton with approval.<sup>1</sup> While being aware of the objections raised against Aristotelian logic by Ramus, Hay defends Aristotle, claiming that he does show us the dangers of sophistical argument, and does not intend to deceive us, as the Ramists would seem to suggest.

I have not been able to find any dictates for St. Andrews for most of the 1670s and 1680s. There is a notebook consisting of lectures delivered by Alexander Grant at St. Leonard's in 1671,<sup>2</sup> and the next set after this is dated 1688.<sup>3</sup> By this latter date the regents had ceased to comment on Aristotle, and had adopted the fourfold division of logic into apprehensio, iudicium, discursus and methodus. In his section on method the lecturer of 1688 refers to the four Cartesian rules with approval. John Row follows the same pattern in 1694, and gives us succinct definitions of what he understood by the terms apprehensio etc.: "Apprehensio

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1. EUL - La.III.722

2. St.A - Ms.36226

3. St.A - Ms.30315



is that operation of the mind which simply considers or contemplates objects, without making any judgment about them. Iudicium is that operation of the mind which passes judgment on the things apprehended. Discursus is the operation of the mind whereby some legitimate inference is drawn from several judgments.

Methodus is the ordering or due arrangement of thoughts which we have about any object, so that we can become better acquainted with it, implant it in our memories, and explain our thoughts to others." <sup>1</sup> Like the 1688 lecturer, Row is aware of Cartesian ideas, but he is not uncritical of them. He rejects Descartes's doctrine of the intellect as "inept", though he credits Descartes with being the most outstanding of all the philosophers in the 16th and 17th centuries. When discussing theories of the origin of ideas, Row rejects both the Peripatetic and the Cartesian positions as being too extreme, and opts for a view somewhere between the two. Peripatetics think that ideas derive from the senses only; Cartesians think ideas derive entirely from the mind. While it is true that some types of ideas, i.e. primary (e.g. pain) and secondary (e.g. colour) come to us via the senses, there are some ideas, however, which can arise only in the mind (e.g. volition, affirmation, negation). On the subject of predicables, Row points out that recent philosophers are wrong in dismissing them as "mere trifles," since it is extremely useful for a philosopher to be able to classify his ideas. However, it is equally wrong to place too much emphasis on them.

The year 1698-99 is the only one for which we have lecture

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1. St.A - Ms.172

notes from both colleges at St.Andrews.<sup>1.</sup> The two sets of notes are virtually identical; all the chapter headings correspond exactly. It may well be that there was at St.Andrews a similar reciprocal arrangement between the two colleges as appears to have existed at Aberdeen, the one set of lectures being used by both colleges. In the section de iudicio, various criteria of truth are examined: (1) That of the author of the tractate whose title is Medicine of mind and body,<sup>2.</sup> i.e. whatever I perceive is true. This criterion is inadmissible, since it puts too much reliance on sense perception. (2) That of Malebranche, i.e. you should never believe anything unless the evidence is so undeniably true that you cannot reject it without an internal struggle and the silent murmuring of reason. (3) That of Descartes, i.e. everything must be considered true which is clearly, distinctly and evidently known to be true. Descartes's is the view adopted, but the regents think it should be extended to sensitive as well as intellectual ideas. This section echoes the lecture notes of Tran and Loudon of Glasgow.

As I have already mentioned,<sup>3.</sup> An introduction to logicks is generally considered to be St.Andrews' contribution to the

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1. St.Salvator's were delivered by Alexander Scrimgeour - St.A - Ms.173, and St.Leonard's by Thomas Taylor - St.A - Ms.LF.1117.c.99(1475).

2. Probably Medicina mentis sive Artis inveniendi praecepta generalia, by E.W.D.T. i.e. E.W.de Tchimhaus (Medicina corporis seu cogitationes...de conservanda sanitate), of which the 1695 edition is listed in the British Museum Catalogue. Tchimhaus is quoted in William Smith's theses of 1704 (Marischal)

3. *supra*, p.48



scheme for a uniform course in the 1690s. It bears certain general resemblances to the lectures being given at St. Andrews at the end of the 17th century, e.g. the division of logic into three parts corresponding to the triple operation of the mind, and the rules given for analytic and synthetic methods. However, this structure is found in virtually all scholastic textbooks, so does not really prove an affinity with contemporary Scottish teaching. An introduction to logicks is much shorter than most of the university dictates, and is written in English. Another slightly atypical feature of the work is that it contains no references to any authority; this may be in line with the universities' avowed intention to compose a course that was entirely their own, but is nevertheless unusual, and quite different from the Aberdeen contribution to the uniform course.

As each university produced its part of the philosophy course, it was carefully vetted by the other universities. A rotation system was devised, whereby any given part of the course was circulated to the other universities in turn for their comments. These comments are preserved in a manuscript volume in Edinburgh University Library<sup>1</sup> and provide invaluable evidence concerning what the different universities thought important in the courses. The acrimonious verbal battles which took place show that, despite the many similarities which can be detected between the dictates of the different universities, there was by no means uniformity in their views on what should be taught and how.

Edinburgh lists 10 objections to the course, of which I shall quote a few to give some idea of the kind of things with

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1. EUL - Dc.1.4

which she disagrees:

1. "Whereas the authors say in their preface that they have in some chapters used the analytic method, in others the synthetic, it had been very proper to have given due example of some chapters of each method.
2. The 3 ordinary figures of syllogisms are omitted in the introduction, and in place of them there is only Cassendus' Figure, whom yet they do not name.
3. The method in the first part seems not accurate in regard they treat first anent some divisions of the ideas, and then de idearum objectis.
4. The definitions of the affirmative and negative propositions seem more obscure than the common ones which are omitted.
10. The definition of accidens logicum is either false or too narrow, for every accidens logicum does not represent an accidens physicum."

Aberdeen's comments are more numerous. The staff there state that the introductory section is too difficult and obscure for pupils. They analyse the three parts, criticising various points in each; e.g. of part 1 they say that the author does not observe the rules of method he himself proposes; there is confusion in some of his definitions; and the categories are dealt with in an oversimplified way. Finally they make four general observations:

1. The course lacks (a) a preliminary section on philosophy in general; (b) numbers for distinguishing paragraphs; (c) an index
2. The different parts of the course are of unequal quality and are written in a different style.



3. It is a great pity that, for the sake of the students, the arguments by which conclusions are proved or attacked are so rarely reduced to a syllogistic form.

4. There are many obscurities and anomalies in the syntax and sense.

Glasgow also finds points to criticise in the three parts, and its general conclusions about the deficiencies of the course are as follows:

1. "Firstly, we cannot approve the method, because it is puzzling and lacking in clarity, does not separate the didactic from the elenctic parts, proposes virtually no arguments in the scholastic manner, and contains very few objections; its conjectures, unless we are very much mistaken, will be displeasing to students, who like a matter to be clearly proposed and expounded; however, the main reason why this logic course displeases us is because it attempts to dispense with everything that has been accepted for centuries."

2. The compendium of logic omits a good deal

3. There are no preliminary remarks on philosophy in general

4. It deals too briefly with the classification and object of logic.

Glasgow made recommendations to the visitation committee for amending the logic course, suggesting that the subject matter should be better arranged and that various points should be clarified, but the main recommendation was that the author should adhere more to the old philosophy.

"The logicks as well as the discursus preliminaris ought to be

more plain, and the old terms retained, though the new may also

be explained that students may understand both. Though it be fit for understanding the new ways of speaking that some philosophers do of late affect that the doctrine de ideis be handled; yet what else but a novaturient humour could make the author constantly use the word Idea and not the ancient words conceptus, apprehensis, notio etc. which himself confesses to be synonymous, by which means philosophy written before Cartes shall not be understood."

As a result of Glasgow's representations a meeting of representatives of all the universities was held. They concluded that: "the tractate of logic ought to be subservient both to the old and new philosophy and therefore the doctrine anent ideas cannot be altogether omitted." The author undertook "So to accommodate the whole logic tractate as not to neglect the old philosophy," to add matter on "speculative and practical knowledge" and to deal with metaphysical degrees under logic; Edinburgh's recommendations were also to be acted upon by the author.

If An introduction to logic is indeed the St. Andrews course, it presumably represents the revised course, since it appeared after all the discussions and resolutions I have just described. However, not all the recommendations of the other universities have been adopted; for instance there is no introductory section on philosophy in general, despite Glasgow's and Aberdeen's criticisms of its omission.

Let us examine now what the theses tell us about logic at St. Andrews. Up to the 1660s the logic theses, like those of Edinburgh and Aberdeen, come first and occupy the greater part of the theses. They are basically Aristotelian, with references



to Aristotelian commentators. In 1612 James Wemyss disapproves of Keckermann and Zabarella - both more recent Aristotelian commentators - and Ramus is also criticised. In 1629 John Ramsay starts off his Theses logicae with the statement: "No logic more perfect than that of Aristotle has thus far existed." By 1631 Aristotle's recent commentators have won acceptance in the theses of John Barclay, which refer favourably to the Coimbra commentators and Zabarella. The St. Andrews theses continue in this vein until 1657, but with the next extant theses - those of Robert Hamilton for 1668 - we are in quite a different philosophical atmosphere. In arrangement and style they are similar to Alexander Alexander's 1669 theses for Marischal College. Hamilton's theses are entitled Schediasmata libero-philosophica and the headings of the various sections (Diatribae progymasticae, Spicilegia, Omnium physiologica, instead of the usual Theses physicae etc. ) suggest a fair degree of individuality and academic aggressiveness on the part of the regent. Hamilton begins his theses with a very catholic selection of quotations:

1. "Amici nobis sunt Plato, Arist., Cartesius: sed magis amica  
veritas

Majoris enim unam veritatem facio quam millemas auctoritates."

Schul.

2. "Miror antiquos non tamen huius saeculi ingenia despicio."

Pliny

3. "Nulli me mancipavi, nullius adictus iurare in verba Magistri

Quid verum atque decus, curam et rogem, et omnis in hoc sim."

Regia Greshamiae Societas

They all indicate an unwillingness to accept the word of authorities

uncritically, and a strong inclination towards the spirit of the new philosophy. It is salutary to note that Hamilton was forced to resign because of the unreliable teaching set out in his theses. Hamilton's first arrow is fired against the Jesuits for logic-chopping, and he claims that pupils' intellects are needlessly exhausted in debating such questions as "Whether logic is an art or a science?" He pours scorn on the syllogism and is somewhat uncomplimentary about Henry More.

With William Sanders's theses of 1674 we are back to more normal academic style. Sanders adheres to Descartes on most points, adopting his geometric method of argument. He blames the Jesuits for having introduced all sorts of useless topics in logic; the remedy lies in restoring logic to its right use.

Cartesianism is also the keynote of Alexander Cockburn's theses of 1679 (Cockburn was subsequently regent at Edinburgh, and the theses he presented there have been discussed above<sup>1</sup>.) and for the first time at St. Andrews we have a reference to Spinoza, whose teaching is rejected as atheistic.

The theses of 1690 are of special interest, since James Gregory was the regent of the magistrand class that year. As is perhaps fitting in a member of that mathematical family, Gregory begins with the statement that geometry is the true basis of all philosophy. This was also Descartes's own view, of course, and the starting point of his method. The theses concentrate mainly on natural philosophy, but Gregory defines logic: it is "an art conveying the method of using what is given correctly in order

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1. p.73-74



to discover the nature of what is to be investigated;" he then dismisses the whole scholastic edifice in a sentence by stating that he only recognizes two predicaments, i.e. what is given and what is to be investigated.

We have theses for both colleges for 1697. John Loudon of St. Leonard's puts the following propositions to be argued by the candidates: (1) Logic is an entirely practical science. (2) Its object is operations of the intellect, which can be reduced to three classes. (3) The number of five universals should neither be increased nor decreased. (4) There is no absolutely first principle among the most common principles. Alexander Scrimgeour's theses approach logic from a slightly different angle. He begins by stating that most of the ideas we have about things are false, and that we must do our best to distinguish true from false propositions. Logic helps us to classify our ideas, and also to form judgments about them. The criterion of truth put forward by Scrimgeour is that "everything should be considered true which is obviously seen to be so."

For 1703 also there are theses for both St. Leonard's and St. Salvator's, and the two regents, John Craigie and Thomas Forrester, recommend Locke in their sections on logic, though Descartes's four rules are cited by Craigie as an aid in investigating the truth.

Having examined the logic dictates and theses of the Scottish universities we are now in a position to draw some general conclusions about the state of that subject in the 17th century Scottish arts curriculum. The pattern of teaching set out at the beginning of the chapter (i.e. a progress from

Aristotle via Descartes to Locke) is confirmed. The list of scholastic authorities who are cited by the regents is fairly comprehensive. It covers commentators of all periods, medieval and renaissance. However, we must distinguish between those whose views are necessarily mentioned for the sake of completeness in the discussion of any given point, and those whose views are fairly consistently cited and approved.

The names Aquinas and Scotus, together with those of Occam and other medieval scholastics, appear in virtually every set of logic dictates and theses, and their teachings on various subjects are frequently set forth and debated. However, the regents often disagree with these early scholastics. For instance, in 1652 Thomas Cusford states that whereas the scholastics divide creation into ens reale and ens rationis this concept is now outmoded; he puts forward several arguments to prove that there is no ens rationis, concluding that "logic instruments of the first degree are not entia rationis, as the schools would have us believe, but the real properties of things and the inter-relationship of the unity, diversity and dependence of things." In 1662, as we have already seen,<sup>1</sup> James Pillans finds points to criticise in the views of both Thomists and Scotists.

Moreover, the dictates and theses do not concentrate exclusively on these early scholastics. Zabarella is also quoted extensively and his definitions are often accepted. The earliest mention of him that I have been able to find occurs in a St. Andrews graduation thesis of 1608; thereafter he is cited fairly consistently throughout the century.

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1. p.67



Many of the other Aristotelian commentators quoted by the regents are recent ones. For instance, if we take the list of authorities referred to by John Wishart in 1660, we find besides Aquinas, Scotus and Zabarella, the names of Compton, Smiglecki, Franciscus Bonae Spei, Hurtado, Arriaga, Derodon, Oviedo, Pontius and the Jesuits of Coimbra. Wishart's 1666 dictates refer to Burgersdijk and his name frequently crops up in notebooks of the second half of the 17th century. Some of these commentators, at least, were "modern" Aristotelians.

We have very few references to Ramus at the beginning of the century, and these are uncomplimentary, e.g. Adamson (Edinburgh) and Wemyss (St. Leonard's) condemn Ramus's teaching in 1600 and 1612 respectively. Rait<sup>1</sup> records that William Forbes, one of the Aberdeen doctors, who was professor of logic at Marischal from 1602 to 1606, defended Aristotle from the attacks of Ramus in his lectures. This is somewhat strange in view of the fact that Ramus features fairly prominently in the curricula of the various universities at this period, as a legacy from Melville. Ramus's Dialectic and Talacius's Rhetoric are included in the Edinburgh course of the 1620s, and Craufurd mentions that the students were examined in Ramus in 1604.<sup>2</sup> It may just be that the references we have were made by regents who happened to be anti-Ramus, and may not indicate a general dislike of Ramus.

By the second half of the century, however, Ramus seems to be viewed with greater favour by the regents, partly due no doubt to the provisions laid down by the General Assembly

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1. Robert S. Rait, The Universities of Aberdeen (Aberdeen, 1895)

2. cf. *supra* p.33

Commission of the 1640s, which advocated a return to Melville's educational scheme in which Ramus had featured prominently, but partly due also, one suspects, to a decline in the standing of Aristotle. Thus, in 1643, James Sharp (St. Leonard's) incorporates into his logic lectures a section entitled Proleomena in P. Rami Dialecticam, while Thomas Glegg (St. Salvator's) has a similar section in his lectures of 1648. In 1675 Thomas Nicholson (Glasgow) praises Ramus for opposing Peripatetic teaching, while in 1689, after listing the scholastics who cast a thick fog over philosophy, Cunningham (Edinburgh) heralds Ramus, Vives, Campanella and Telesius, who introduced a purer, freer philosophy.

Ramus's works feature in the library lists. At Edinburgh a work on Ramus's Dialectic was purchased in 1627, and a copy of Ramus's Arithmetic in 1643. In 1668 copies of his De religione and his Dialectic were bought; in 1672 his Praelectiones in Ciceronis Orationes octo Consulares, and in 1675 the Prefaces, letters and orations of Ramus and Talaeus. At Glasgow the first record of a Ramus purchase is in 1652, when his Arithmetica and Geometria were bought. Ramus's name next appears in 1691, when the library acquired his Artes dialecticae. However, the catalogue of works in the library which was compiled in 1691 shows that the library already possessed Ramus's Dialectic, Rhetoric, Logic and Scholae in artes liberales. Marischal College received a copy of Ramus's Arithmetica and Geometria in 1613, as part of Duncan Liddel's bequest, and a copy of his Oratio de legatione among the books given by Robert Dun in 1657. According to its catalogue of 1700, King's College seems to have possessed a copy of Ramus's mathematical works, but not of his logic. St. Andrews had a copy



of Ramus's Dialectic presented towards the end of the century. It is perhaps possible to detect an increased interest in Ramus in the second half of the century in these library records, but the evidence is really too slender to allow us to make any definite pronouncement based on them about the status of Ramus in the university courses.

So far the Aristotelians I have been listing as being quoted in the university dictates and theses have been "modern" in the main, but it should be pointed out that the names of more traditional Aristotelian commentators appear with equal frequency, i.e. Cajetan, Toletus, Fonseca, Ruvius, Mendoza, LeRees and Keckermann.

The conclusion that can be drawn from all this, I think, is that the regents were aware of the vast corpus of Aristotelian commentaries that existed and, in the traditional manner of scholastic debate, balanced the views of various authorities against each other in their lectures. It would be misleading to claim that the Scottish regents concentrated on writers such as Zabarella and the Coimbra commentators, whom Schmitt and others have classed as modern Aristotelians, but at least they were acquainted with their works and were frequently prepared to accept them over the older Aristotelian commentaries. It is important to remember, particularly with regard to the Spanish Jesuits, that religious differences prevented the Scottish regents from giving their wholehearted allegiance to the teaching of some of the Aristotelian commentators. Throughout the dictates they constantly oppose the Jesuit position, especially on the question of transubstantiation, which is always discussed in the logic

dictates in the sections on substance and accident. Indeed the Scottish regents often seem to be torn between objecting to the Jesuit teachings on religious grounds, and recognizing their preeminence as Aristotelian commentaries.

The sections on method in the logic notes are another criterion by which we can estimate the nature of the Aristotelianism being taught. Schmitt has pointed out that the increasing discussions of method in the 17th century may well have evolved from the emphasis placed on the Posterior Analytics in most university courses.<sup>1</sup> Certain concepts, such as the synthetic and analytic method, became increasingly clarified and refined in their application. This process can be seen in the Scottish dictates. In 1660 Andrew Massie (Edinburgh) has three chapters in his section on method.<sup>2</sup> The first deals with method in general, which Massie says is the most useful part of logic, and he quotes Descartes at some length on the subject. Chapters 2 and 3 are entitled respectively On analysis or the method of resolution, and On synthesis or the method of composition.

William Law uses his appendix on method to set out rules for composing arguments so that there is no doubt about their meaning, and also rules for the analytic and synthetic methods.<sup>3</sup> Gerschon Carmichael's 1708 lectures follow the same pattern.<sup>4</sup> At Aberdeen and St. Andrews too, the regents gave considerable space to their sections on method. Thus George Peacock (Marischal

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1. Charles B. Schmitt, "Towards a reassessment of Renaissance Aristotelianism."

2. EUL - La.III.154

3. NLS - Ms.183 (Edinburgh, 1698)

4. GUL - Ms.Lu.67; Ms.Gen.255



College) in 1688 has chapters on method in general, on the analytic and synthetic methods, on the eight principal rules on which method rests, on certain general axioms which can serve as principles in the investigation of truth, and on certain particular axioms which recur constantly in logic and other sciences.<sup>1</sup>

Alexander Abercrombie's lecture notes (King's College, 1694) are on similar lines, with particular emphasis on the synthetic and analytic methods.<sup>2</sup> At St. Andrews the lecture notes taken down by James Lyon in 1688 distinguish between synthesis and analysis, and also give the four Cartesian rules which pertain to all method.<sup>3</sup> The comments made on the St. Andrews course of the 1690s give further proof that method was a major concern of the regents in their teaching.

It is true that the analytic and synthetic methods, drawn from geometry, belong in the scholastic tradition, but it is in the works of later Aristotelians rather than of the earlier scholastics that these methods are discussed. Thus, the sections on method show that within the Aristotelian tradition the regents were aware of modern trends; and of course added to this we have frequent references to Descartes's method.

It is tempting to see a further indication of modernity in the frequent intermingling of rhetoric with the logic courses, and in the separate short treatises on rhetoric that are occasionally found in the student notebooks (e.g. in the dictates taken down from Thomas Glegg at St. Salvator's in 1648<sup>4</sup>). This

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1. AUL - M.182

2. AUL - K.109

3. St.A - Ms.30315

4. EUL - Do.5.45,45\*

may owe something to the Renaissance humanism seen in Ramus's works, which attempted to link the eloquence of the newly discovered Greek and Roman classics with philosophy teaching, thus dislodging the edifice of medieval scholastic jargon. Indeed this supposition gains support from the inclusion of the works of Ramus, and the Rhetoric of his associate, Talaeus, in the university curricula. However, the inclusion of rhetoric in the logic courses was probably due less to the influence of Renaissance humanism than to the important place held by disputation in Scottish university teaching - a practice which of course stems from the scholastic tradition. We have already seen in the previous chapter that the regents were at pains to recommend the virtues of dialectic,<sup>1</sup> and I think we must conclude that the rhetoric included in the courses was aimed at equipping students for the many disputations which formed part of their course and, in the more long term view, was intended to help them in their careers as ministers, lawyers or regents.

When commentaries on Aristotle's text ceased, the subject of logic was organized in all the universities under three headings - apprehensio, iudicium, discursus, frequently with a fourth section on method, as we have just seen. This arrangement may owe something to Port Royal logic, which differs from the usual triple arrangement followed in scholastic textbooks by the addition of a section on method. The basic work of Port Royal logic - Logica, sive ars cogitandi, by Antoine Arnauld and Pierre Nicole - first appeared in 1662 in French, the Latin version

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1. pp.29-30



following in 1674. Before the end of the century copies had appeared in the various university libraries. The first edition of the Latin version was bought for Edinburgh in 1676. The regent Alexander Cunningham presented to the library in 1689 The spirit of H. Arnaud, published in 1684. The Glasgow library list contains a note of the London, 1682 edition, but it was not acquired until sometime after 1691, and the King's College Library catalogue of 1700 also lists a copy. It is thought, e.g. by Veitch<sup>1</sup> and Knox,<sup>2</sup> that the St. Andrews printed course shows the influence of Port Royal logic, and Knox states that it is similar in structure to Aldrich's Artis logicae Compendium. Moreover, Carmichael of Glasgow quotes Fleury, whose work on logic<sup>3</sup> is based on the Port Royal system, and according to Veitch Carmichael's published work on logic (Breviusscula introductio ad logicam) shows the influence of Port Royal. The Art cogitandi is mentioned in the Dalvine papers as being one of the works used by the Mackenzies at the beginning of the 18th century, and John Buchan and Thomas Burnet praise the Art cogitandi in their graduation theses of 1681 and 1686 for King's College and Marischal College respectively.

Despite such evidence, however, I think that the form and content of the later logic teaching is more likely to have been taken from scholastic textbooks such as those of Burgersdijk

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1. John Veitch, "Philosophy in the Scottish Universities," Mind, 2(1877), pp. 74-91; 207-234
  2. T.M. Knox, "The philosophers," Chapter 5 of Veterni Laudes, ed. J.B. Salmon, (Edinburgh and London, 1950)
  3. Fleury wrote a number of works which connect him with the ideas of Port Royal, the best known of which is Traité du choix et de la méthode des études (Paris, 1686)



and Keckermann, than from the Port Royal logic. It is worth remembering that the universities' joint letter to the Commission of 1695 rejects the Port Royal logic: "Ars cogitandi tho it be a pretty book yet cannot be the standard to be taught, labouring with obscurity, fitt only for the more adult and not intelligible by youths, short in the Topicks, and runs out in many digressions idly and makes use of Protestant arguments as examples of sophisms, and his treatise De methode is very dangerous." While we cannot always take the statements in this letter as reflecting the actual content of the dictates, I think that in this case they probably do. The logic dictates are so scholastic in tone, that they almost certainly derive their inspiration from scholastic textbooks. Indeed, Robert Baillie, writing to Gisbert Voet in 1654, says that the works of Keckermann, Burgersdijk and Scheibler are used in the Scottish universities,<sup>1</sup> while in 1717 it is stated that John Law of Glasgow began logic by teaching Burgersdijk.<sup>2</sup> At Edinburgh copies of Keckermann's works were purchased in 1635 and 1639, and a copy of Burgersdijk's logic in 1653. Glasgow received a copy of Keckermann's works in a bequest in 1619, and they were purchased in 1687. The library list of 1691 shows that Glasgow also had individual copies of Keckermann's logic. We do not have records of acquisitions for Aberdeen for the earlier part of the century, but certainly by 1684 King's College library had a copy of Burgersdijk's logic, received as a bequest, and the

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1. The letters and journals of Robert Baillie, A.M., Principal of the University of Glasgow (Edinburgh: Bannatyne Club, 1841,42), vol.3, p.269

2. Notices and documents illustrative of the literary history of Glasgow, p.124



library's catalogue of 1700 lists an edition of Keckermann's works. St.Andrews' catalogue of books which was drawn up in 1687 by order of a Visitation notes a copy of Keckermann's philosophy, and also a separate copy of his Systema logicum, and Burgersdijk's logic was presented to St.Leonard's College library by Mungo Murray in his bequest of 1670. All this shows that scholastic textbooks which are similar in outline to the university dictates were as available as the Port Royal logic, if not more so.

The scholastic system remained the standard one for teaching logic until the end of the regenting period. As we have seen, the Cartesian method is cited in the dictates and theses of the 1670s and 1680s, but it is usually absorbed into a framework which is basically Aristotelian. Indeed the regents seem sometimes to have been puzzled as to how to include the Cartesian method in their dictates - witness John Tran, who solved the problem by relegating his exposition of Descartes's teaching to an appendix.

The library lists show that scholastic-type commentaries on Aristotle and scholastic textbooks continued to be bought until the end of the century alongside more modern works. In 1653 and 1655 the following Aristotelian works were bought for Edinburgh: LeRees's Logica, Heereboord's Synopsis of Burgersdijk, and the Cursus philosophicus of Compton, Pontius and Franciscus Bonae Spei, while in 1656 a copy of the Cartesian Clauberg's philosophy was acquired, together with works by Descartes in 1656 and 1657. A copy of Derodon's Philosophia contracta was bought in the same year (1668) as Clauberg's logic. In 1670 and 1671 several works on Descartes's method were purchased, together with Oviedo's Tractatus theologici, scholastici et morales, and Galtruchius's

five volume philosophy course. As late as 1685 the library at Edinburgh still thought it worthwhile to buy the commentaries on Aristotle of the Scot Robert Balfour, which had been published in 1620, although at the same time they also bought two more recent works by Thomas Coveanus: Ars sciendi, sive logica, nova methodo disposita and Logica elenctica; sive summa controversiarum quae circa materiam et praecepta logicae agitari solent (the copies of these works which are listed in the British Museum Catalogue are dated 1682 and 1683 respectively). Wallis's Logic was purchased in 1690, Leclerc's Logicks, and Locke's Essay concerning human understanding in 1694, and Malebranche's De veritate in 1696, but Arriaga's Cursus philosophicus was also purchased in 1694.

Despite Glasgow's conservatism, the purchasing records of the University library show that Descartes's works were acquired there at much the same time as in Edinburgh. The first mention of Descartes occurs in the list of a batch of books received from Holland in 1655, and in the same year a copy of Campanella's De sensu rerum was bought. However, scholastic works predominate in the lists of this period. In 1642 the works of Ruus, the Coimbra commentators, Robert Baron, Smiglecki and Bonaventura were purchased. Suarez's Opuscula were acquired in 1649, Duncan's philosophy in 1651, Arriaga's works in 1652, and the philosophy courses of LeRees and Franciscus Bonae Spei in 1656; also purchased in 1656 were Scheibler's Logic, a Cursus philosophiae Thomisticae and Cammuel's philosophy. Such scholastic works continue to feature in the library lists until the end of the century; Oviedo's Cursus philosophicus was bought in 1687 and Duncan's Institutiones logicae in 1695, though we should note that Locke's Essay



concerning human understanding and Malebranche's De la recherche de la vérité were also bought in 1695.

We do not have such precisely dated records of accessions for Aberdeen as we have for Glasgow and Edinburgh, but Henry Scougal's and his father's bequest to King's College library in 1684 shows that their library contained a mixture of scholastic and more recent works, while the Marischal College list of books bought since Thomas Gray's time (i.e. after 1673), which was compiled by Robert Paterson (librarian from 1673 to 1717) contains Zabarella's Logic, Erius's Commentaries on Aristotle's Metaphysics, and Buridanus's Quaestiones super libros Aristotelis, alongside Descartes's Meditations.

St. Andrews has a catalogue of books bought by Dr. Alexander Skene, who was Provost of St. Salvator's from 1680 to 1691, for the library, which includes Descartes's works, but also the scholastic writings of Oviedo and Franciscus Bonae Spei. Thomas Forrester's purchases at the end of the century include Malebranche's De la recherche de la vérité, Cassendi's Logic and Derodon's Logica reposita. Among the books left to St. Leonard's College by John Wedderburn in 1678 are Arriaga's Cursus philosophicus and works by Franciscus Bonae Spei, Fonseca and Scaliger, together with Cassendi's and Descartes's works, Emanuel Maignan's Cursus philosophicus, and Campanella's Philosophia universalis and Philosophia rationalis.

The logic that was taught by the regents corresponds to the provisions made for logic in the various Commission reports. In the earlier part of the century commentaries on Aristotle's logic books - the Organon, Categories, De interpretatione, Prior

and Posterior Analytics, Tonics and Elenctics - together with Porphyrius's Isagoge were proscribed. Ramus, as we have seen, featured in the curricula from the beginning to the middle of the century; however, the references to Ramus in the dictates and theses are too few for us to be able to draw any definite conclusions on this point. In the Glasgow course of the 1640s Burgersdijk's logic is recommended, together with Vossius's Rhetoric. Again the dictates, theses and library lists of all the universities show that Burgersdijk's works were both available for consultation and frequently referred to, and, as I have suggested, once the regents ceased to comment on Aristotle, the outline of their lectures was based on the logic textbooks of Burgersdijk and others.

In 1687 the St. Andrews regents put forward their ideas about the ideal logic course, which should explain "the nature of the most observable properties of our cogitations, the ordinary defects and errors of them with their remedies, and particularly the art of reasoning, that by the time they come to this last part of the logic course they begin and thence go forward in the elements of geometry, which in effect is true and useful logic, and from that is secretly understood the principles and errors of reasoning." This ideal, although perhaps not altogether realised in the contemporary logic courses, nevertheless reflects their content to some degree. Under the three headings apprehensio, iudicium and discursus the regents attempt to explain "the nature of the most observable properties of our cogitations." Each of the three sections frequently has as its concluding chapter an outline of the causes of error in that particular operation of



the mind, together with ways of remedying them.<sup>1</sup> Finally, the synthetic and analytic methods which, as we have just seen, feature in so many of the dictates, are geometric methods, which ties in with St.Andrews' linking of geometry with logic; this in turn ties in with the university's acceptance of Cartesianism.

In the discussions on the uniform course in the 1690s attention was focused on the relationship of logic to metaphysics, with most of the universities deprecating any attempt to separate the two subjects. The dictates and theses of the latter part of the century show a tendency to merge logic and metaphysics, and indeed, when the theses are no longer divided into sections, it is frequently difficult to draw a firm dividing line between the propositions concerned with logic and those concerned with metaphysics. Particularly where the works of Descartes and Locke are discussed do we see this blurring of distinctions, but it is also present in the more Aristotelian dictates and theses, where the logic sections often contain lengthy metaphysical discussions on such concepts as substance and accident.

The differing views of the colleges concerning St.Andrews' contribution to the uniform course show that there was by no means a consensus on logic teaching. And, although the general pattern of the courses in logic is the same for all the universities, there are minor variations between the colleges within this pattern. Thus Glasgow emerges as the most conservative of the universities. The regents there continued to comment on Aristotle's text for longer than at the other universities, and in their comments on the St.Andrews course the Glasgow masters criticised it for not adhering to the old philosophy. St.Andrews and Aberdeen appear to

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1. e.g. St.A - Ms.30315; Ms.172; Ms.173

have been committed to Cartesianism - perhaps more than Edinburgh was, certainly more than Glasgow was. There is a great deal of Cartesianism in the Edinburgh dictates, but it is worth noting that two of the most pro-Cartesian regents at Edinburgh came from other universities - Massie from Aberdeen, and Cockburn from St. Andrews. Even within one university not all the regents were teaching the same thing at the same time. We have already seen how Pillans and Wood at Edinburgh continued to adhere rigidly to the old methods of Aristotle, while their fellow regents, Paterson and Wishart, were at least aware of the newer philosophies.<sup>1.</sup>

Finally, the logic dictates provide us with grounds for suggesting that a standard joint course was almost certainly being used at the two colleges at Aberdeen in the 1690s, and possibly also at St. Salvator's and St. Leonard's. This would suggest that the real reason why the scheme for a uniform course was abandoned was not because the universities were opposed to or apathetic about the idea of a uniform course; obviously it would have saved a great deal of time, and need not have become rigid and excluded the introduction of new ideas. It is rather in the universities' desire to preserve their autonomy that we must seek the reason for the scheme's failure. A uniform course might just be acceptable if decided upon by the universities themselves, but not if imposed on them by government Commissioners.

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1. pp.72-73



## Chapter 4

The place of metaphysics in the university curriculum was a matter for some discussion in the 17th century. The 1695 Commission explicitly directed that "logics should be taught without mixture of what concerns metaphysics." Most of the universities objected to this, and claimed that metaphysics should form part of the course, stressing the close connection between logic and metaphysics. In the previous chapter I have already mentioned how metaphysics became more and more inseparable from logic in the course of the century, and how difficult it sometimes is in the later theses to distinguish metaphysical from logical propositions. In what follows it will emerge that not only did logic and metaphysics overlap, but also ethics and metaphysics, and natural philosophy and metaphysics. We shall also see that the distinction between metaphysics and theology was one which concerned the regents to a great extent.

As with the logic dictates and theses, Aristotle and the scholastic commentators provided both the framework and the body of the teaching in the first half of the 17th century. Once the regents ceased to comment on Aristotle the lectures gradually came to be organized under two separate headings, metaphysics and pneumatology. This division is reflected in the splitting of metaphysics in its wider sense between Edinburgh and St. Andrews when the parts of the uniform course were distributed in the 1690s; Edinburgh was allotted pneumatology and St. Andrews metaphysics. The source for this division is probably the

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 scholastic textbooks; for instance, in Burgersdijk's Institutionum Metaphysicarum libri duo the two books correspond to the metaphysics and pneumatology sections of the lectures.

Cartesian ideas began to appear in the lectures and theses of the 1660s and were accepted in the 1670s and 1680s. More specifically, the Cartesian metaphysical ideas cited by the regents are those found in his Meditationes rather than the doctrines in his Principia Philosophiae. Along with Descartes we find the names of Clauberg and Legrand. In general those regents who approve of the teachings of Descartes also approve of his Cartesian followers. In the 1690s there was a movement away from Cartesian metaphysics. Sometimes, but by no means always, the movement was towards Locke's ideas, and the works of his disciple, Leclerc, are also cited by the regents.

To see this progression of ideas let us now turn to the metaphysics dictates and theses of the four universities.

The first set of lecture notes on metaphysics which we have for Edinburgh is Thomas Craufurd's, delivered in 1654.<sup>1</sup> Prior to that date questions which Craufurd deals with in his Compendium of metaphysics were discussed as they occurred in commentaries on the appropriate books of Aristotle's logic.

Craufurd defines metaphysics as "knowledge of immaterial being both according to essence and as regards matter." He thinks that God is indeed the subject of metaphysics, but only part of the subject. Proceeding to state the principia of metaphysics Craufurd outlines the Aristotelian standpoint: (1) It is impossible for the same thing to be and not to be at the same time. (2)

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1. EUL - Dc.5.122



Every true thing must be seen in either affirmative or negative terms. (3) Efficient cause is by its nature prior to the effect. In successive chapters he then deals with ens in genere, principia entis, proprietaes, unus, unicus and multus, unitas numerica, unitas universalis, simplicis et compositis, distinctio et convenientia, veritas, bonitas, contingens necessitas, actus et potentia, finitus, accidens in genere, ens in genere, substantia spiritualis. The authorities Craufurd quotes are all scholastics.

After Craufurd's lectures there is a gap of 17 years before the next metaphysics lectures we have, which were delivered by John Wishart in 1671.<sup>1</sup> Wishart has moved on from the Aristotelian position. The list of authorities he gives at the beginning of his lectures is fairly comprehensive, but as well as all the traditional philosophers - Origen, Eusebius, Bradwardine, Aquinas etc., Wishart includes some more modern names, such as More, Stillingfleet, Baxter, Glanville, Heereboord and Maignan. He constantly stresses that metaphysics is subservient to religion, and that one of its main uses is to defend Christianity against atheism. The chief object of metaphysics, according to Wishart, is the investigation of ens, and among the various definitions of ens quoted by Wishart is the Cartesian. However, once we get into the lectures, it becomes evident that Wishart is not in agreement with Descartes. After discussing the properties of ens - unity, truth and goodness - Wishart turns to the problem of place and imaginary space. He begins by quoting the theory of Scaliger and Epicurus, viz. that locus is merely imaginary space. Derodon

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1. EUL - Gen.698D

Voet and Lessius all follow this theory and hold that space is therefore imaginary. For Arriaga and others imaginary space is merely extended body, while Thomas White and William of Paris hold that the existence of another world is improbable, that there are no other bodies outwith this world, and consequently that there is no imaginary space in which any other body could be possible. Wishart then describes Descartes's concept of extension at some length before refuting it. His main objection to Descartes seems to be that he denies God's omnipresence, and this is also the objection to the theories of Cassendi and Walter Charleton, who, Wishart says, posit an infinite, eternal, uncreated, immovable world apart from God. Two appendices to Wishart's lectures are devoted to questions which have a doctrinal application. The first concerns the problem "Whether it is possible for bodies to penetrate." Wishart presents arguments to show that body is, by its nature, impenetrable, though he does not exclude the possibility of supernatural penetration, citing the instance of Christ appearing to his disciples through locked doors. This is also relevant, of course, to the corpuscular philosophy of Bacon, Boyle and Newton. Newton chose impenetrability as one of the three fundamental properties of matter, the others being extension and inertia. Leading on from this question is the problem of whether a body can be in several places at one and the same time. Again Wishart claims that this is impossible on the natural level, but feasible on a supernatural plane, viz. the doctrine of transubstantiation.

These lectures of Wishart's are repeated in 1674 and 1675<sup>1</sup>.

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1. 1674 - St.A-Ms.1949; 1675 - EUL-Dc.8.27; Dc.5.96



but with additions. Although they are still predominantly scholastic and anti-Cartesian, there is a good deal of discussion of the views of various authorities ancient and modern, some of it absent from the lectures of 1671. Wishart includes more material about the infinite in these lectures; on the question of whether the concept of infinity can be understood without reference to God, he quotes the views of Franciscus Bonae Spei, Maignan, Hobbes, Compton and Derodon. The conclusion reached by Hobbes in his 26 elements that there is no primus motor is dismissed as absurd. In dealing with various definitions of the corporeal and incorporeal, Wishart accepts More's statements against those of Maignan, and ridicules Hobbes's beliefs as set out in Leviathan. Hobbes, Regius, Cassendi, Vossius and Lactantius are all grouped together for censure. These lectures of 1674-75 contain a section entitled Cartesii meditationes pro incorporeo, in which Wishart claims that much of Descartes's thought on the subject is not original; the scholastics had already made all the points he touches on.<sup>1</sup> Wishart cannot accept Descartes's Meditations, as they contain much that is uncertain. The additional matter from Descartes and Hobbes in the 1675 lectures shows that there was some updating of lectures to include current matter. As I have already mentioned in the introductory chapter,<sup>2</sup> Wishart's discussion of Hobbes's doctrines is part of the general outburst by regents against Hobbes around this time.

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1. For a full treatment of this very point, cf. the writings of Étienne H. Gilson, in particular his Études sur le rôle de la pensée médiévale dans la formation du système Cartésien (Paris, 1930)

2. p.8

It is interesting that, for all his support of Aristotelian commentators, Wishart is prepared to follow Ramus in his definitions of various types of causality - an indication that he was willing to use any source in his teaching and not to be bound in slavish adherence to any one authority.

Wishart's lecture notes of 1675 conclude with a short section on pneumatology, introducing the division so common in later metaphysics teaching into metaphysics proper and pneumatology, which, as I suggested above, probably derives from scholastic textbooks.

The year following Wishart's first set of lectures on metaphysics we have a Compendium of Metaphysics dictated by James Pillans<sup>1</sup>. which, like Pillans's lectures and theses on logic, belongs explicitly with the old philosophy; indeed it is entitled Philosophia peripatetica. The authority most frequently quoted is Burgersdijk.

By 1683-84, however, with the lectures of Robert Lidderdale,<sup>2</sup> we are on entirely Cartesian ground. Lidderdale quotes Clauberg, the Cartesian commentator and Maignan. Descartes's teachings are recommended and Lidderdale proves that Cogito ergo sum is the first principle.

Andrew Massie gives only a Preface to a metaphysical treatise in 1690,<sup>3</sup> but this is enough to show that he too is in favour of Descartes. He claims that Descartes is not guilty, as many are, of including in metaphysics subject matter which does not really belong there. Massie himself proposes to deal only with ens and its attributes, not with God and the angels, who

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1. EUL - Dc.6.4-5

2. St.A - Ms.1955

3. EUL - Dc.7.92



belong in theology rather than philosophy.

Herbert Kennedy (1692) is more critical of Cartesian ideas.<sup>1</sup> He disagrees with Descartes's first principle Cogito ergo sum, on the grounds that the conclusion is not self-evident, and he also objects to the Cartesian proof of God's existence. However, Kennedy agrees with Descartes when he says that body is separate from soul, even though we cannot have complete knowledge of this fact. On the question of whether the world could have existed from eternity, Kennedy condemns the Jesuit belief, which affirms this view, and recommends the Cartesian, Antony Legrand, on the subject; Legrand proves that the fact of creation can be ascertained by the light of nature. Kennedy may well have had others besides the Jesuits in mind here, since arguments about the eternity of the world were also given by deists and materialists.

Moving into theology, Kennedy discusses different viewpoints on the first cause, and rejects Jesuit and Arminian beliefs in favour of Calvinist teaching. For further reading Kennedy recommends to his students "first of all Descartes, then Clauberg, Legrand, Velthusius and Wittich among more recent authors, and among older authors Suarez, Scheibler and any of the scholastics."

Descartes's first principle seems to have passed into general disfavour in Edinburgh in the 1690s. William Law, lecturing in 1699,<sup>2</sup> also disapproves of Cogito ergo sum and together with it the whole concept of universal doubt, claiming that there are so many propositions which are so evidently true

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1. EUL - Dc.8.118

2. GUL - Ms.Gen.464; EUL - Colin Campbell Collection; NLS - Adv.ms.22.7.4

that we cannot doubt them. Law concludes that there is no single principium, but several principia.

Law begins his lectures by defining ens and dealing with metaphysics proper, which is acclaimed as the chief science. He outlines the uses of metaphysics; it teaches that it is impossible to give a name to something of which we cannot form any idea, and that everything can be reduced to substance, mode and relation; thus, when we investigate the nature of an object, we must enquire first of all into whether it is substantia, accidens an relatio. The scholastics are defended; they gave us a useful framework of terms for discussing metaphysics, and enabled us, through the study of metaphysics, to understand some dogmas in Christianity which would otherwise be incomprehensible; it is true that they fell into the vice of using more words than necessary, but their terminology is basically not merely useful, but essential.

Law then goes on to pneumatology, whose purpose is stated as follows: (1) it gives us knowledge of God and our own minds, thus providing a foundation for ethics; (2) it proves the existence and nature of God by the light of nature; (3) it provides us with useful ammunition against atheists. Law's statements of the purpose of metaphysics and pneumatology show how important the subject was held to be by the Scottish regents, which explains their almost universal outcry at the omission of metaphysics from the uniform course proposed by the Commissioners in the 1690s. They also indicate how inseparable the subjects of logic and metaphysics were - again a point of which the Commissioners had failed to take account in their propositions.

Law's Pneumatologia is divided into three sections:



De mente humana; De Deo; and De spiritibus puris. Under the first heading Law discusses the Cartesian notion that thought is an essential attribute of the mind; his own stance is not particularly clear, but seems to be anti-Cartesian. Two schools of thought concerning the mind's immateriality are identified: Democritus, Epicurus, Hobbes, Spinoza and other atheists vv. Plato, Aristotle, Henry More and others. Law comes down firmly on the side of the latter who claim that the soul is immaterial. In dealing with the faculties of the human mind, Law discusses the origin of ideas - a topic which is frequently dealt with under logic. For an account of the passions Law refers the student to Descartes's treatise on the subject, and Descartes is mentioned again with approval in the section De Deo; this time the student is referred to the proofs of God's existence contained in the Meditations.

Like all his fellow regents, Law is unable to keep away from theology when dealing with metaphysics. He introduces the topic of substance and accident, and states that the Reformed Church, together with more recent philosophers such as Cartesians, is right on this, pointing out the shortcomings of Catholic teaching, which seems to be largely concerned with intrinsic and extrinsic possibility.

Charles Erskine's lectures of 1703<sup>1</sup> cover the same ground as Law's and in the same way. Neither Law nor Erskine actually mentions Locke, though they were probably influenced by him in their objections to Descartes. With the lectures delivered by Robert Stewart in 1705,<sup>2</sup> however, we have explicit references to Locke. For instance, when dealing with the question of whether

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1. HLS - Adv.ms.20.7.1

2. GUL - Ms.Mu.44; Ms.Mu.33

the human mind stops thinking when the body is asleep, Stewart cites the arguments of Leclerc, who followed Locke, and he refers his students to Locke's Tentamen de intellectu humano for further evidence in support of his contention that ideas cannot be innate.

Pneumatology was allotted to Edinburgh as her part of the uniform course proposed by the 1695 Commission, and William Law was appointed to compose it. The course has not survived, but the comments of the other universities on it prove that it was written, and also tell us something of its content.

Glasgow criticised the course mainly on the grounds that it was too Cartesian. The Glasgow regents reject the Cartesian definition of mind as a thinking substance because, although Descartes did not dream of laying the way open to atheism, this is in fact where such a definition leads; they contend that the mind does not always think, and that the arguments brought in favour of the Cartesians do not carry much weight. Among their general observations they claim that "this whole treatise savours too much of Descartes, whose metaphysical meditations and contemplations we do not rate very highly." Moreover, the Glasgow regents fear that too much dwelling on new teachings runs the risk of bordering on heresy, especially in subjects which are closely related to theology.

If William Law's contribution to the uniform course bore any resemblance to his 1699 dictates, the Glasgow regents must indeed have been hyper-sensitive to Cartesianism, since while Law upholds Descartes's teaching on some points, he is by no means a devoted Cartesian.

A meeting was held to consider Glasgow's observations



on the Pneumatics, at which the question of Cartesianism was hotly debated between Glasgow and Edinburgh. After a discussion as to "whether Descartes's opinion anent the essence of the soul consisting in cogitation doth indirectly lead to atheism," it was concluded that it does not, "whereupon Mr Tran gave in a paper claiming that the whole chapter de mentis humanae essentia was unfit for youth, not only because of its inconsistencies, but also for some unwarrantable positions and expressions, and that the whole tendency thereof was to establish Descartes's opinion and impress that on the reader," and he reaffirmed the tendency of Cartesianism to lead to atheism. Law, however, stuck to his position against Tran, and the matter was referred to the Commission. The delegates as a whole were of the opinion that the author had not insisted too much on Descartes's opinions, but Glasgow adhered to the animadversion, "knowing how much damage has come to the youth that way."

In another statement Edinburgh pointed out (a) that Descartes is not the only philosopher to have thought about the nature of the mind as he did; de Vries holds a similar view; (b) that far from the treatise "savouring too much of Descartes," Cartesian doctrines are refuted when they are erroneous.

Glasgow also thought that scriptural texts should have been used to prove the positions in the pneumatics, but the delegates were of the opinion that it is not proper to prove positions in a philosophical tractate by Scripture.

Aberdeen's regents seem to have found little to criticise in the pneumatology course. They issued the following statement: "The Aberdeen professors approve of most of Edinburgh's pneumatology

and disapprove of only a few points, and those of little consequence."

We do not have St. Andrews' comments on the course, but we do have Edinburgh's reply to them, in which Edinburgh upholds the "principle of thinking," denies that the tractate is guilty of verbal quibbling, and defends the pneumatology of Leclerc, claiming that it gives an account of the process by which ideas are formed. St. Andrews regents also seem to have complained that the author did not distinctly enough give his opinion about the Cartesian hypothesis de essentia animae, as a result of which Law was asked to expand on this subject.

The Edinburgh metaphysics dictates, then, show a progression from Aristotle, through Descartes, to Locke. This pattern is repeated in the graduation theses.

Theses metaphysicae feature in the Edinburgh theses as early as 1600 - proof that the regents considered that they were teaching metaphysics in the course of their lectures on Aristotle. However, Theses metaphysicae do not appear every year; there are none in the extant theses for the years between 1601 and 1620. It was obviously at the regent's discretion whether or not he included separate metaphysical theses; where they do not appear ens is often treated under the heading Theses logicae. The early Theses metaphysicae are consistently Aristotelian with theological overtones. The first mention of any author other than Aristotle appears in John Wishart's theses of 16<sup>6</sup>8, where Hobbes's arguments are outlined and ridiculed, and Descartes's definition of space as extended matter, together with his Cogito ergo sum, is rejected. In 1672 Wishart's metaphysics theses are still



basically Aristotelian, but he also approves highly of More; he says that "we strongly approve of More's metaphysical Enchiridion because of its wisdom and the arguments advanced there." Descartes and Hobbes, on the other hand, are dismissed. Wishart's 1676 theses give a list of metaphysical writers: Origen, Eusebius, Aquinas, Momay, Grotius, More, Stillingfleet, Baxter, Strang, Rutherford and Baron - a wide ranging roll-call, it must be admitted, but nevertheless including the names of several 17th century philosophers. Wishart states that metaphysics had to be cleared of a mass of inconsequence, as exemplified in the work of Suarez, and among the new metaphysicians who helped in this task he lists Voet, Derodon, Heereboord and Rutherford. Hobbes's pernicious doctrines are again refuted and Descartes is still viewed with suspicion, though Wishart does concede that Descartes testifies to the usefulness of metaphysics. Among Wishart's problemata are questions which show that Cartesian ideas were being widely discussed: whether ego cogitans sum is the first principle, whether whatever is clearly and distinctly perceived is true, whether extension is matter. Wishart's 1680 theses are much the same as his 1676 ones, only this time Spinoza's name is linked with that of Hobbes as a fellow atheist. Wishart also refers here to Bacon's statement that "contemplation of final things for its own sake is the cause of inertia and idleness," with which he disagrees, maintaining that "those who contemplate final things are the most diligent of all."

To return to the beginning of the 1670s, we find William Paterson stating in 1671 that those who claim with Descartes that nothing is created from nothing are as ridiculous as they are

impious. However, one should not brand as atheists those who inquire into the nature of created spirit. Among the problemata which Paterson poses at the end of his theses are the following questions: "Is spirit a thinking substance? Is spirit penetrable by something of the same nature as itself? Are animals mere machines, as Descartes thinks?" Paterson's 1679 theses show that he still viewed Descartes with distrust: "Descartes does not yet appear to us to have proved, contrary to Cassendi, that there can be pure intellect in this life, so true is that statement of the Peripatetics that "nothing exists in the intellect which was not previously present in the senses."

Pillans's Theses metaphysicae, like his Theses logicae, are concerned with Aristotle only, but Wood, his fellow conservative in logic, discusses the views of van Helmont, "who maintains that reason or rationality is not entirely the essential, basic or principal part of the human soul," before refuting them. Wood's list of problemata show that he too was aware of and prepared to discuss Cartesian ideas.

With Gilbert McMurdo's theses of 1682 Descartes has won acceptance. Ego sum is quoted as the first principle and Cartesian ideas concerning the mind are mentioned favourably. Equally Cartesian are the theses of Alexander Cockburn (1684 and 1688), Robert Lidderdale (1685) and Herbert Kennedy (1686). Cockburn in particular is at great pains to separate the wicked doctrines of Hobbes and Spinoza from Descartes's teaching.

By 1690, however, we can detect a diminution of Descartes's influence in the theses. In that year Herbert Kennedy states that he prefers the first principle Illud omne existit a quo dependet



aliud quiddam quod existit to the Cartesian Cogito ergo sum. He justifies this by claiming that even when we are devoid of any thought we exist. Cunningham's theses of 1692 also reject Cartesian thinking, and tend towards the views of Duhamel and Locke, though he does not accept all they say. For instance, he says of Locke: "We recognize Locke's sharp intellect and keen judgment in his Essay on the human intellect, where he deals with the origin and combination of ideas, and sets out many arguments against innate ideas; however, the desire to achieve too much has driven him astray in the matter of God's existence." Also, Cunningham believes that the human mind has two faculties, the intellect and the will, whatever Locke says to the contrary (Bk.2, Ch.1).

William Scott in 1699 rejects both the Cartesian and the Peripatetic first principles, and maintains that the true first principle is existit Deus. He thinks that the study of metaphysics is useful in giving us definite axioms which agree with all our ideas, but beyond this he has nothing much to say on the subject of metaphysics.

It is worth noting that these later theses (from the 1690s onwards) contain less in the way of metaphysics, but far more on physics. This is perhaps indicative of a turning away from a more speculative abstract philosophy towards the empiricism of the 17th century British scientists. The final set of theses we possess for Edinburgh - those of William Law, 1705 - demonstrates this change of attitude very well. Law claims that Descartes's hypothesis about the origin of the world has been discredited; philosophers now recognize that the human intellect cannot probe the mysteries of creation; we should be content with observing

the universe and its phenomena.

Despite the fact that Glasgow regents show conservatism in their criticisms of Edinburgh's pneumatology, the actual teaching of metaphysics in Glasgow seems to have followed much the same pattern as in Edinburgh.

In Thomas Kennedy's notes of 1637-43<sup>1</sup> we can see indications that ens and related topics were discussed. William Blair's lecture notes, delivered in 1665,<sup>2</sup> contain a short Tractatus metaphysicus. Blair defines metaphysics as being concerned with anima, and his subject matter includes ens; the attributes of ens - unitas, veritas and bonitas; distinctio and praecisio; essentia and existentia; the predicaments; and substance and accident. The authors he quotes are mainly scholastic, e.g. Vasquez, Suarez, Arriaga, Hurtado, Compton, Burgersdijk and Keckermann, but Descartes's Cogito ergo sum is referred to briefly. Another modern author quoted is Henry More; Blair seems to be favourably disposed towards his De mortalitate animae. In common with most of the Scottish regents, Blair enters the sphere of theology when he comes to discuss substance and accident, with references to Christ's humanity and the nature of the trinity, and in his final section he describes the divine attributes, quoting Capreolus, Molina and Valentinus (Disputation on heresy).

Alongside such acknowledgment of Cartesian philosophy, we still find lectures which contain no mention of any author apart from Aristotle and his scholastic commentators, e.g. Hugh Walker's and John Young's lectures of 1656-57<sup>3</sup> and Andrew Burnet's lectures

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1. GUL - Ms.Gen.186

2. GUL - Ms.Gen.355; Ms.Gen.369

3. St.A - Ms.36230



of 1659-61.<sup>1</sup> However, Cartesian ideas were beginning to find acceptance in Glasgow by 1675. After outlining Descartes's Cogito ergo sum and his theory of universal doubt, Thomas Nicholson points out that it must be remembered that this theory was evolved in a particular context, and it should not be thought that Descartes excludes other principia absolutely.<sup>2</sup> In 1677 Blair<sup>3</sup> quotes the views of Descartes, Clauberg, Legrand and Henry More, as well as those of the scholastics. Two years later John Tran announces that caution is needed in approaching the teachings of the Jesuits, in particular of Suarez, about metaphysics; it is so easy for the inexperienced reader to mix up false opinions with the truth.<sup>4</sup> In his introductory remarks he is at great pains to separate metaphysics from theology. Tran then proceeds with his lectures under three headings: De ente in communi eiusque proprietatibus; De praedicamentis ad hanc disciplinam spectantibus; De Deo et angelis. The arguments of Clauberg and More are mentioned alongside those of the scholastics, but for the most part Tran disagrees with the modern philosophers. He promises the student an appendix on Descartes's Meditations and Method, but in fact this is absent from the notes as we have them. Tran's lectures on metaphysics are repeated in 1682,<sup>5</sup> 1687<sup>6</sup> and 1690,<sup>7</sup> this time with the appendix on Descartes, where Tran (somewhat surprisingly in view of his strictures on Edinburgh's pneumatology course) speaks of Descartes in glowing terms and sets out his method, stating that

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1. NLS - Adv.ms.22.6.5

2. NLS - Adv.ms.5.2.2

3. GUL - Ms.Gen.10

4. EUL - La.III.715

5. GUL - Ms.Lu.227

6. NLS - Ms.9386; Ms.9385

7. GUL - Ms.Lu.214

this summary of Descartes's life and teachings is intended to act as a stimulus to those who seek knowledge and virtue.

John Law's lectures of 1692-93<sup>1</sup> divide metaphysics from pneumatology - the first time this occurs in the Glasgow notebooks. Law gives Aristotle's definition of metaphysics, and points out that it must be distinguished from pneumatology or natural theology. In the section on metaphysics Law relies mainly on scholastic authorities, quoting Burgersdijk in particular. However, under the heading De accidente Law prefers Descartes's theory that heat, taste etc. result from different modifications and combinations of matter. Turning to pneumatology, Law states that he agrees with the Cartesian Cogito ergo sum, but dislikes Descartes's definition of spirit. Law thinks that spirit is a penetrable substance, capable of thought and volition.

By 1699 Law's view of Cartesian teaching has undergone a change.<sup>2</sup> Of Cogito ergo sum he now says that "this statement is not a principium; other truths do not follow from it; it is not necessary for acquiring knowledge of other things." Law would not wish it to appear that he is utterly opposed to Descartes; he recognizes that Descartes was a fine and perceptive philosopher, but he was not free from error; even more to be blamed are his followers who, contrary to Descartes's own advice, carried this universal doubt into the schools. In these lecture notes Poiret (Cogitationes Rationales)<sup>3</sup> and Gerard de Vries are quoted

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1. EUL - Dc.8.18

2. GUL - Ms.Mu.49

3. i.e. Pierre Poiret, Cogitationes rationales de Deo, anima et malo libri 4; in quibus quid de hisce Cartesius, eiusque sequaces senserint, omnisque philosophiae certiora fundamenta continentur, nec non B.de Spinoza Atheismus et errores funditus extirpantur.



frequently; de Vries's definition of spirit as substantia cogitativa is preferred to the Cartesian definition of res cogitans. The section on pneumatology contains favourable mention of William Bates's De existentia Dei, Richard Bentley's Sermons against atheism and Robert Boyle; the mechanistic view of the universe is attacked.

Law's 1703 lectures<sup>1</sup> are virtually the same as those of 1699; they are anti-Cartesian, and Burgersdijk is the authority most frequently recommended.

Another set of notes, taken down by William Bowie in 1699,<sup>2</sup> was probably dictated by Tran (Bowie is recorded as having been a pupil of Tran's in 1697). By now the enthusiasm for Descartes, seen in the appendix to the 1690 notes, has evaporated; possibly it was never very whole-hearted in any case, given Glasgow's general antipathy to Descartes. Tran criticises the scholastics for having burdened metaphysics with "thorny questions and prolix disputations," but he is not happy with the recent tendency among philosophers to dismiss the scholastics entirely; he proposes to follow a middle course. He then proceeds to show the inadequacy of Cogito ergo sum as a first principle. After an introductory section on metaphysics in general, Tran deals with all aspects of ens, then with the predicaments (Burgersdijk and de Vries are quoted here) and finally with pneumatology. In this last section the Cartesians are again criticised, among other reasons (a) for being big-headed in their boast that they alone have discovered how to prove the existence of God; (b) for not making a distinction between positive and spontaneous doubt; (c) for stating that God

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1. GUL - Ms.Mu.35

2. GUL - Ms.Gen.69

can make possible the impossible. Dumndus, Keckermann et al. are quoted. When discussing the human mind, Tran refers to Locke's experiments which prove that the mind does not always think. He quotes Henry More on the relation of mind to body, and sets his theories up in opposition to those of Hobbes, Spinoza and other atheists who dwell on the material nature of the mind. Tran appears less anti-Cartesian here than earlier in his lectures; he refers his students to Descartes's Meditations for further information on the mind.

Finally we come to Gerschom Carmichael's lectures on metaphysics<sup>1</sup> which are thoroughly anti-Cartesian. Carmichael states that we must reject Descartes's universal doubt, because there are certain established truths about which the mind can be in no doubt. The mind becomes clouded by affecting shadows and indulging in doubts. Thus Cassendi, when writing on Descartes, is right to claim that when the mind is concerned with falsity, it is least likely to be able to perceive the truth. Descartes's method is also opposed to religion; among the things he doubts is the existence of God and whether God is good. Carmichael claims that Descartes is not even very original, since some of what he says echoes St. Augustine.<sup>2</sup>

There is a set of dictates taken down by Colin MacLaurin while he was a student at Glasgow ca. 1712.<sup>3</sup> These were possibly also dictated by Carmichael<sup>4</sup> and include a thesis on pneumatology.

1. 1704 - GUL - Ms. Gen. 222

2. cf. supra p. 116 and the reference there to the writings of Etienne Gilson.

3. Now in the British Museum

4. MacLaurin is on record as having entered the 4th class in 1710 under Alexander Dunlop, who by that time was fixed professor of Greek. Gerschom Carmichael had the 3rd class the following year, and MacLaurin's laureation under Carmichael is recorded for 1713, so the probability is that Carmichael was MacLaurin's regent throughout the philosophy course.



This is concerned entirely with an exposition of various theories about different aspects of the mind. The regent states that mind is a substance quite different from matter, but he thinks that Descartes's proofs for this contention are rather weak. Henry More is also criticised for asserting that extension is a universal attribute of all substances, and Poiret's opinion on how the mind is created is dismissed as being rash and absurd. The regent concludes that the mind is immediately created by God alone, and is not to be thought of as having a prior existence before its union with the body. On how the mind is connected with sensation the regent has this to say: "The mind is determined to sensation from without. But this determination does not come about through perceptible Aristotelian forms, nor through fictitious Epicurean images, but simply through movement roused by a perceptible object either with or without an intermediary agent in an external sensory region, and continued by animal spirit flowing through the passages of the nerves to the brain; or rather through the action of God himself accompanying that movement, which is in accordance with the laws of union established by him." Reference is made to the controversy about the origin of ideas, and the regent gives qualified approval to the views of Malebranche: "The distinguished Malebranche has rightly rejected the various views as unlikely. He shows that the human mind contemplates all the objects of its knowledge not in its own substance nor in exemplars either created together with it, nor impressed by an object through its true efficiency, nor, finally, fabricated by it. However, he concludes incorrectly from this that the forms and exemplars by means of which the mind is equipped to perceive external objects are not in

the mind itself, but in God alone, or rather that they are the divine substance itself. This viewpoint is inconsistent with the activity of the mind in choosing its own ideas, which was posited above; it is also inconsistent with daily experience which proves that it is not almighty God, but far inferior things that are the most familiar objects of our knowledge. We must conclude, therefore, that the human mind is adapted to choosing its own ideas by means of characteristics inherent to itself; these are impressed on it not at the first creation of the mind, but later, when it has the opportunity of observing the objects presented to it."

On judgment the regent rejects the views of both Aristotelians and Cartesians (and incidentally, by this discussion of iudicium and apprehensio in metaphysics dictates, shows yet again how closely logic and metaphysics were linked in Scottish university teaching, and how futile were the efforts of the Commissioners to separate them in the 1690s). He says: "The controversy aroused on this point between Aristotelians and Cartesians is futile, i.e. whether judgment is an act of the intellect or of the will. The crux of this question (as long as they do not provide ideas of intellect and will) may be stated as follows: whether acts of acceptance or refusal have a more pronounced affinity with apprehension, which pertains to the intellect than with selection which pertains to the will. Our reply is that judgment is a type of thinking quite different from both of these, so that it cannot be included in the same category as either of them; for it is not true to say that apprehension, rather than will, is concerned with truth or falsehood, as the Aristotelians maintain; nor does our mind flourish in judgment more freely than in pure apprehension



(on the contrary, it often functions less freely), as the Cartesians would have us believe."

Finally, the regent disagrees with Locke over the moral activation of the will: "Locke was wrong in declaring that the will is directed to begin or terminate an action not because of the prospect of greater good, but because of some immediate restlessness; for either this restlessness arises from the presence of some evil, and consequently affects the will exactly as though it were to consider that the absence of evil is good; or else it arises solely from desire for the absent good, and consequently this desire does not originate from any other source than the prospective good of the desired object."

The Glasgow theses serve to fill out the picture of metaphysics teaching given by the dictates. In 1646 James Dalrymple's Theses metaphysicae are thoroughly scholastic; so are the 1663 theses and William Blair's of 1671. John Boyd's 1693 theses which concern metaphysics are still in the same mould; metaphysics is classed as being concerned with ens reale and is divided into transcendental and predicamental. In 1698 John Law mentions Descartes's definition of spirit, but rejects it, preferring the definition which describes spirit as "an immaterial or penetrable substance, the source and origin of intellect and will." Gershom Carmichael takes full cognisance of contemporary theories in 1699. He begins with the assertion that knowledge of our existence is a basic truth, though this cannot be set up as the first principle in the way that Descartes does. On the subject of the nature and origin of intellectual ideas, Carmichael thinks that those philosophers are nearest the truth who hold that all the

exemplaria of our original notions must derive from the actual presence of the objects with which they are connected. He disapproves of Malebranche's recourse "to some sort of intelligible beings existing in God as the immediate objects of all our notions." The mind is not only able to form ideas, but to compare and pass judgment on them; it is pointless for Aristotelians and Cartesians to argue whether judgment is an act of the intellect or will, since it can be reduced to neither of these categories. Locke seems to Carmichael to diverge unnecessarily from the commonly held view when he says that the will's choice is determined not always by its judgment concerning the worth of an object, but by its desire for an object as being necessary for man's happiness. Carmichael accepts Malebranche's classification of the passions into cupiditas, laetitia and tristitia. He criticizes the views of Henry More, who wanted universal extension to be an attribute of ens, and dismisses the writings of John Leclerc; finally he stresses that natural religion can never be a substitute for revealed religion.<sup>1</sup> In his theses of 1708 John Loudon has far less to say about metaphysics than Carmichael; he merely accepts the Cartesian first principle.

We have very few lectures on metaphysics for Aberdeen. For King's College there are three sets of dictates, dated 1662,<sup>2</sup> 1692<sup>3</sup> and 1694.<sup>4</sup> The first set was probably dictated by George Gordon and consists of a treatise on metaphysics, of which we

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1. The similarity between the views expressed in Carmichael's metaphysics theses and those set out in MacLaurin's student notebook proves virtually conclusively, I think, that Carmichael was the regent who dictated MacLaurin's notes.

2. NLS - Adv.ms.22.7.15

3. AUL - 2092

4. NLS - Adv.ms.22.7.15



have only the first part, dealing with the nature of ens, how essentia differs from existentia, and the problem of substance, which is related to theological questions. In the same notebook are commentaries on Aristotle's De anima, where all the authorities quoted - Arriaga, Oviedo, Vasquez, Hurtado, Compton, Franciscus Bonae Spei, Suarez, Scaliger - are scholastics.

The 1692 lectures would appear from their title - Introductio ad metaphysicam in usum studiosae iuventutis in Collegio Regio - to have been used by all the regents around this time. This would be in line with the uniformity which we have already seen in the logic lectures. The lectures begin with the statement that metaphysics follows naturally from logic; it is the root of all other sciences. The subject is divided into two: part 1 deals with ens and part 2 with the predicaments. There is no reference to any authority apart from Aristotle, which is surprising in view of the frequent appearance of Cartesianism in contemporary Aberdeen theses.

The 1694 lectures - Introductio ad pneumaticam etc. - would seem to be the second part of the metaphysics course currently being taught at King's College. The subject is divided into four parts, dealing with spirits in general, God, the angels and the human mind. Hobbes's denial of spirits is criticised, and Descartes and Huygens are quoted.

For Marischal College we have one definite set of metaphysics lectures, delivered by George Peacock in 1707.<sup>1</sup> Peacock begins by defining metaphysics and discussing the Cartesian method. He

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1. AUL - M.175

seems to accept Cogito ergo sum as the first principle, and claims that Cartesian doubt paves the way for truth. Parts 2 and 3 are concerned with various attributes of ens.

There is also a set of metaphysics dictates taken down by Patrick Lyon in 1708-09, which possibly belongs to Marischal College.<sup>1</sup> In these lectures the regent outlines Peripatetic and Cartesian theories of metaphysics, but declines to pronounce in favour of either, claiming that he has neither the time nor the inclination to do so.

The earliest Theses metaphysicae which we have for Aberdeen are those which appear in William Forbes's theses for King's College, 1623. Forbes maintains that the subject of metaphysics is only what is concerned with spirit. All the other regents in the first half of the century give the more traditional definition of the subject of metaphysics, i.e. ens qua ens. Andrew Strachan's 1631 King's College theses have a strong theological bias and deal with such topics as the nature of substance; this overlapping of theology and metaphysics is characteristic of virtually all the early theses which contain sections on metaphysics (as in the case of Edinburgh, Theses metaphysicae do not always feature in the graduate theses).

Andrew Cant (Marischal College, 1654) is the first regent to refer to Descartes but, as in his logic theses, his allegiance is with the scholastics. He quotes Oviedo, Scotus, Franciscus Bonae Spei, Hurtado, Arriaga and Suarez. Religious questions are raised, such as the nature of the Trinity, and the problems raised by Socinianism. Cant's scholasticism is epitomised in some

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1. St.A - Ms.30312; duplicated by St.A - Ms.30313



of the philosophical problems he poses at the end of his theses, e.g. "Can angels discourse? Did some error in their intellect in fact precede the angels' first sin?"

George Meldrum's 1659 theses (Marischal College) would appear to deal with metaphysics in the section on physics (instead of in the logic section, which is usually where metaphysics features when there are no Theses metaphysicae). Meldrum disapproves of the scepticism inherent in Descartes's Cogito ergo sum. He discusses the question of substance and accident, disagreeing with the views of Compton, Suarez, Arriaga and Hurtado, and condemns the teachings on free will of both Jesuits and Arminians, quoting Voet with approval against the Jesuits.

The first indication of the acceptance of Cartesian metaphysics in the Aberdeen theses occurs in Thomas Gray's of 1673 (Marischal College). Gray criticizes Gassendi, Henry More and other recent philosophers for their objections to Cogito ergo sum as first principle. George Middleton of King's College is the next regent to acclaim Descartes, in 1675. After outlining Descartes's line of reasoning, Middleton gives the Cartesian proof of God's existence and also describes Descartes's dual classification of things into material and immaterial. Hobbes's arguments against the existence of things spiritual are repudiated as being contrary to "faith, experience and reason," and Henry More is quoted with approval. Middleton concludes by classifying God and the angels among spiritual substances.

We have already noted Robert Forbes's anti-Cartesianism in his theses of the 1680s which relate to logic. His metaphysics theses are even more vehement against Descartes, since in metaphysics

the dangers of atheism are greater. "The schools are loud with the name of Descartes," Forbes declares; "Cartesianism flourishes more and more each day, and in flourishing grows proud and insolent. And it is not just in the philosophy schools; even in the Reformed Churches of Belgium bold insanity breaks all bonds of peace and tranquillity so that the new dogmas of Descartes may obtain." (King's College, 1680). It is absolutely wrong to doubt God's existence, and in opposition to Descartes Forbes cites Vincent Hattecliffe "in his penetrating treatise aut Deus aut nihil."<sup>1</sup> Cudworth's Intellectual System of the Universe is also quoted with approval (King's College, 1684). In these later theses Forbes seems prepared to admit that Descartes is a great philosopher, but he still has strong reservations: "Descartes was indeed a great philosopher; we shall not object to his being praised if anything revealing is found in his teaching; nor shall we deny him his due acclaim if he has brought truth to light. For free thinking is allowable; indeed it is a fine thing and worthy of a Christian; but to set oneself against most if not all commonly accepted opinion in the Reformed Church and to overturn the foundations of religion, solely because one is weary of the old method and desires novelty, is a serious and wretched business, greatly to be deplored."

Despite such invective, however, Forbes's fellow regents remained firm in their allegiance to Descartes, and this allegiance continued into the 18th century.

Occasional signs of a reaction against Cartesianism can

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1. The full title of Hattecliffe's work is: Aut Deus aut nihil. God or nothing, or a logical method deducing from the actual being of what we evidently experience the unavoidable necessity of a God against the Atheists (London, 1659)



be seen. For instance, in George Skene's theses (King's College, 1696), Skene begins by warning against over-reliance on reason in philosophy. Thomas Burnet's Archaeologia<sup>1</sup> testifies to the dangers of this approach. Burnet relied too much on his own reasoning, and has justly incurred criticism for taking too little account of the Mosaic biblical narrative, and declaring the scriptures to be fictitious and an unworthy object of faith. Skene then praises John Leclerc for his attack on those who claim that all substance is either thinking or extended. Finally Spinoza is condemned because he stated that there is only one substance, and thus put God on the same level as human beings.

William Black (King's College, 1705) is also distrustful of Cartesian concepts: "Many today think that the essence of spirits consists entirely in thought, but in fact thought gives us only a confused and inadequate notion of the mind... Descartes is the first among philosophers, but he was led by his own preconceived idea rather than by sound reasoning or incontrovertible experience when he deprived animals of the perception of their senses."

George Peacock (Marischal College, 1693 and 1711) is basically a Cartesian, but he is distrustful of some of the

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1. Thomas Burnet (ca. 1635-1715). The work referred to here is Telluris theoria sacra, published in 1681, in which Burnet attempted to combine the idealism of the Cambridge Platonists, Scripture and an explanation of features of the earth's surface. Most of the attacks on Burnet's work were on religious grounds; he was accused of a too liberal or allegorical interpretation of Scripture, or of eliminating the necessity of God's working in the universe.

implications of Descartes's method: "This doubt is not to be adopted freely by everyone; it has circumscribed limits and should not be applied to matters of faith or to practical living.

Epicureans maintain that in investigation of the truth we should rely on the senses. Aristotelians claim that nothing can be in the intellect which was not previously in the senses. For Descartes those facts are more reliable which are apprehended with the mind rather than with the body; thus the norm of truth for him is clear and distinct perception. For a certain recent philosopher<sup>1</sup> the rule is "whatever I conceive is true." Malebranche apprehends truth from the mind's internal and secret reproaches. All these philosophical positions, though extremely diverse, are admissable when they are properly expounded."

James Lorimer (Marischal College, 1683), Alexander Fraser (King's College, 1697), William Smith (Marischal College, 1700, 1704, 1708 and 1712) and George Fraser (King's College, 1691, 1695 and 1706) are all thorough-going Cartesians, however; George Fraser remarks on the fact that men who delight in mathematics frequently shrink in horror from metaphysics. This is because general notions which are thought to be well-known to everyone are made obscure and ambiguous through human negligence and inconsistent thought. However, Fraser thinks that in metaphysics, even more than in mathematics, one needs clarity and certainty;

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1. Peacock does not identify this philosopher. It might be either Hobbes or Locke, and since Locke's philosophical position is more likely to have been considered admissable by Peacock than Hobbes's, the reference here may well be to Locke.



mathematics provides its own methods and proofs, whereas metaphysics lacks such aids, but Descartes has come to our rescue and provided them.

St.Andrews' lectures on metaphysics cover a wider period than those for Aberdeen, going from 1645 to 1716. James Sharp gives a Compendium of metaphysics in 1645,<sup>1</sup> in which he deals with ens and its attributes. In 1649 we find Thomas Glegg equating metaphysics with natural theology;<sup>2</sup> he quotes different ideas about the object of metaphysics, e.g. those of Suarez and Hurtado, but concludes that its object is ens. Glegg claims that metaphysics increases our knowledge of universals, and confirms and demonstrates first principles. William Campbell's Compendium of 1658<sup>3</sup> is similar; the following commentators are referred to: Suarez, Camerarius, Oviedo, Scheibler, and Thomists and Scotists. David Falconer's lectures of 1664<sup>4</sup> explore what Aristotle and Porphyrius have to say about metaphysics and again the authorities quoted are scholastic.

The first mention of authors other than the scholastics in the St.Andrews' lectures occurs in 1670,<sup>5</sup> when John Hay claims that he is departing from the usual nomenclature of metaphysics and proposes to follow either Maignan in calling it philosophia entis, or Clauberg in calling it ontosophion. Hay refers to Descartes's method, but objects to it on the grounds that it places too much emphasis on the human mind, and not enough on what we must accept as given. The authors referred to by Hay are

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1. St.A - Ms.BR.85.55

2. EUL - Dc.5.45,45\*

3. St.A - Ms.4354

4. EUL - La.III.723

5. EUL - La.III.722

frequently Aristotelian commentators, such as Cajetan, Scotus and Durandus, and he recommends his students to read Derodon and Francis LeRees.

The notebook of Alexander Robertson, dated 1682-83,<sup>1</sup> is of interest in that, while it does not contain any lecture notes on metaphysics, there are some notes at the end taken down by the student from a work by John Strang, who was Principal of Glasgow University from 1626 to 1650. The work in question is possibly De voluntate et actionibus Dei circa peccatum, published in Amsterdam in 1657. Other notes are taken from Robert Baron's Metaphysics and Stillingfleet's Origines sacrae. We can be fairly safe in assuming that these works had been recommended by the regent, Alexander Grant, to his students.

By 1688 Descartes's metaphysics had been accepted at St. Andrews. The first part of the dictates we have for that year<sup>2</sup> concerns ens, which is dealt with in the traditional manner, but the second part is entitled Cartesian demonstrations concerning God and the soul, and within it Descartes's Method and Meditations are summarised. These lecture notes correspond to St. Andrews' statement, made to the Visitation Commission in 1687 about a proposed method of teaching. Their twofold division reflects the distinction drawn in this statement between "the part of metaphysics which has a near affinity with logic, viz. scholastic explanations of and disputations about the notion and properties of being, and these common terms of essence, existence etc." and the other part of metaphysics "concerning the nature and properties of spirits,

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1. St.A - Ms.36225

2. St.A - Ms.30315



their distinction from matter, the demonstration of the existence of a Deity etc. for which there is sufficient ground and assistance from what is written in the Meditations of Descartes."

An introduction to metaphysics, published in 1701, which may be St.Andrews' contribution to the uniform course, begins with a list of the uses of metaphysics: (1) it enables us to find out truths and avoid errors; (2) by it we can divide all beings into certain classes, whereby we avoid confusion in our thinking; (3) it provides us with names for common and abstracted beings. The subject is then divided into three parts: on being in general, on the properties of being, and on the predicaments.

Both Veitch<sup>1</sup> and Knox<sup>2</sup> have a poor opinion of An introduction to metaphysics. Knox says that it is remarkable only in being wholly pre-Cartesian.

The comments of the various universities on the course circulated by St.Andrews are as follows:

Edinburgh claimed that they had not had time to comment fully on the metaphysics, but noted that the author of the first part seemed to speak with too little respect of some learned men and their sentiments and reasonings when they happened to be opposite to his own, and objected to the disparate styles of the first and second parts. Glasgow criticised the author of the course for his excessive criticism of both Descartes and the scholastics: "The scholastics must not be entirely rejected, since they have treated

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1. Veitch, "Philosophy in the Scottish Universities," p.91

2. Knox, "The philosophers," p.66

many topics very ably; nor are their terms to be eliminated from the schools, since we have none to substitute in their place which are more suitable for explaining things; we think also that the author attacks Descartes too severely when he says that he is mad." After mentioning various points in the course which should be changed, Glasgow summarised its deficiencies:

1. "We desire a separate method whereby positive and controversial facts are separated.
2. There are certain points here which are at variance with what is said in pneumatology."

Various points concerning eng had been omitted, moreover, and the author had not dealt with time; on this latter point the Glasgow regents asked whether time was to be dealt with in general physics.

Aberdeen does not appear to have commented on the St. Andrews course.

At a meeting held to discuss Edinburgh's and Glasgow's observations, the St. Andrews regent responsible for the course agreed to most of the alterations suggested by the other universities, e.g. he "agreed that the schoolmen are not to be rejected, but that their chaff is to separate from their com, and in place of [certain] words about Cartes some more smooth to be inserted;" he also agreed to make his section de objecto metaphysicae a little shorter.

As with the comments on the St. Andrews logic course, these comments made by the other universities do not seem to tally with the printed course. In particular, An introduction to metaphysics contains no mention of Descartes or any other authority. This contributes to the doubts I feel about whether it really does



represent St.Andrews' contribution to the uniform scheme.

By 1707, the next date for which we have metaphysics notes for St.Andrews, there has been a definite moving away from Descartes. Thomas Taylor confines his lectures<sup>1</sup> to the second part of metaphysics - pneumatology - which he divides into three parts, concerned with the human mind, pure spirits and God. After some introductory remarks, in which he claims that pneumatology is the highest branch of learning, since it is concerned with spirits, and that it is a more exact science than physiology, for example, since we have more certain knowledge of the mind than of the body, Taylor proceeds to discuss the nature of the human mind. He argues against Descartes's theory that the power of thought is the mind's essential attribute, and proves that the mind does not always think. On the subject of the distinction between mind and body, Taylor completely rejects the opinion held by Democritus, Epicurus, Hobbes and Spinoza, and the whole crowd of atheists, that thought is a subtle modification of corporeal matter. He agrees with the majority of ancient and modern philosophers, including Henry More, that thought is incorporeal. Taylor rejects innate ideas and, in the last section on God, disagrees with Descartes yet again, this time over Descartes's arguments in proof of God's existence.

Colin Vilant, lecturing in the following year,<sup>2</sup> goes much further than Taylor in his criticism of Descartes, referring to the Cartesian method as "this impossible, absurd and dangerous method of doubt." Every time Descartes is mentioned by Vilant it is in scathing terms. Vilant deals first with metaphysics

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1. St.A - Ms.5144

2. St.A - Ms.5076

proper, and his treatment of it is on traditional lines; his attitude to the scholastics is the one with which we are now familiar - they descended to unnecessary verbal quibbles, but should not be dismissed outright, as there is "much cleverness and much that is worth knowing in their writings." The section on pneumatology contains objections to the Cartesian distinction between body and soul, the Cartesian definition of the mind, and Cartesian proofs of God's existence. Vilant also refutes Descartes's concept of innate ideas.

Equally anti-Cartesian are John Craigie's lectures on pneumatology of 1710,<sup>1</sup> which also contain strictures on Hobbes and Spinoza. In his lectures of 1716<sup>2</sup> Craigie states that students who wish to know more on the subject should consult de Vries (Exercitationes) for the Peripatetic view and Poiret (CoGITationes rationales) for the Cartesian view.

The St.Andrews theses support the picture of metaphysics teaching that we get from the dictatés. As was the case in the Edinburgh and Aberdeen theses, not all of the early St.Andrews theses contain special sections dealing with metaphysics. Where there are Theses metaphysicae they are largely concerned with ens and have strong theological overtones in their concern with the first cause. Nevertheless, William Lamb (St.Salvator's, 1613) is at pains to point out the distinction between theology and metaphysics, i.e. the former works through revelation, the latter through the light of nature.

As in the logic theses and dictates there is frequently

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1. St.A - Ms.5136

2. St.A - Ms.167



opposition to Jesuit authorities on doctrinal grounds. This is illustrated in the 1632 Theses metaphysicae of James Mercer (St.Leonard's). Mercer discusses the question of free will and follows the teaching of Calvin, Beze and Smiglecki, rejecting the views of Ballarminé and the Jesuits. Similar allegiance to Protestant theology is seen in William Campbell's Theses metaphysicae (St.Salvator's, 1657), where he recommends the De scientia media of William Twisse, the Puritan divine, who wrote this work partly to refute the teachings of Suarez.

The first mention of Descartes in the St.Andrews theses occurs in Robert Hamilton's Schediasmata libero-philosophica of 1668. Hamilton scorns sceptics, among whom he numbers Descartes with his theory of universal doubt. He seems to favour Henry More's theory that the mind acquired knowledge of its condition before union with the body. Aristotle's description of anima is rejected, and Hamilton applauds the approach of empirical philosophers; however, to apprehension by the senses should be added the judgment of the intellect. Discussing the nature of truth, Hamilton indicates his dislike of the Jesuits' definition, and declares with Clauberg and others that there is no truth in the intellect unless it derives from simple perception. Hamilton supports Hobbes, claiming that he has been wrongly attacked because he attributes corporeality to God. After defending Hobbes's theories, Hamilton goes on to mention More's concept of a plastic world soul, and also the views of Richard Baxter, the Puritan divine.

By 1674 Cartesian metaphysics had been adopted at St.Andrews. In that year William Sanders (St.Leonard's) says that

in order to emdicate the prejudices of infancy, we must rely on the evidence of reason rather than on sense data; he thinks that the Cartesian theory of metaphysical doubt is the best starting point. Sanders is careful to obviate any possible imputation of atheism by stressing that divine truths are not open to philosophical doubt. Having done so, he upholds Cogito ergo sum as first principle.

Equally Cartesian are Alexander Grant's theses of 1676 (St.Leonard's), where he maintains that the essence of spirit consists in thought. In 1679 Alexander Cockburn (St.Leonard's) rejects the Aristotelian Impossibile est aliquod simul esse et non esse in favour of Cogito ergo sum. He disapproves of Spinoza and also of the Jesuits, but quotes Clauberg with approval. James Martin (St.Salvator's, 1681) takes much the same stance, claiming that everything can be reduced to two classes, i.e. res cogitantes and materiales, that the existence of our own minds is the starting point for all further thought, and that the faculties of the human mind are intellectus and voluntas.

John Monro's theses of 1686 (St.Leonard's) are a practical demonstration of the teaching of metaphysics recommended by the masters of St.Andrews in their letter of 1687. Monro praises Descartes as the chief of philosophers, and cites Mersenne's letter to Voet in which he acclaims Descartes. Cartesian philosophy brought about the union of nature and art, reason and experience, practice and theory, and paved the way for useful arts such as optics, mechanics, anatomy and chemistry. Monro points out that the Cartesian doubt is not proposed as an end, but only as a means of arriving at metaphysical certainties, and he defends Descartes against charges of scepticism and atheism.



By the 1690s there had been a reaction against Cartesianism. In 1697 John Loudon (St.Leonard's) states that Cartesian doubt had the unfortunate effect of reintroducing scepticism. The Cartesian method is not so much opposed to the light of nature, but rather impinges on religion by doubting God's existence and goodness. Equally suspect are the views of the Deists, with their notions of the infinite; Leclerc, following Locke, belongs to this school. Loudon considers it an impiety to call God's existence into doubt, or turn it into a philosophical problem. As for Spinoza, by deity he just means a sort of universal nature. Loudon praises Poiret and de Vries for their attacks on Spinoza. In Loudon's eyes atheists and Deists are more or less the same thing. There can, however, be good arguments for God's existence, cf. the works of Richard Bentley.

Thomas Forrester (St.Salvator's) is equally pro-Richard Bentley and anti-Spinoza in his 1703 theses. This interest in Bentley may indicate indirectly an interest in Newton, since Newton had helped Bentley in his Boyle lectures. Both Forrester and his fellow regent at St.Leonard's, John Craigie, disagree with Malebranche when he says that we see our ideas in God. No-one can doubt that the human mind ultimately derives from God, but how it does so is a matter for controversy. Like their predecessors, Forrester and Craigie are wary of any theory which might be thought to tend to atheism, and for this reason they reject most of what Descartes has to say about spirit.

From this survey of metaphysics teaching in the Scottish universities it can be seen that the metaphysics dictates and theses follow much the same pattern as the logic ones.

Aristotle and the scholastics determined the content of the dictates and theses at the beginning of the century. Emphasis was on ens in all its aspects and on God. The same Aristotelians whose names appear in the logic sections of the dictates and theses are also found in the metaphysical sections. Arriaga, Franciscus Bonae Spei, Fonseca, Suarez, Lessius, LeRees, Burgersdijk, Zabarella, Hurtado, Oviedo et al. all feature in the notes or theses of at least two, and usually several regents. What is more, the scholastic approach to metaphysics continued to have its defenders right up to the end of the 17th century and in to the 18th century. Thus, in his dictates of 1699, William Law of Edinburgh claims that the framework of terms given us by the scholastics is indispensable for understanding certain theological dogmas. Colin Vilant of St. Andrews makes much the same point in 1708. It is worth noting, however, that, as we saw in the chapter on logic, although all these commentators are in the Aristotelian tradition, some belong in the more "modern" tradition, which had been influenced by Renaissance humanism.

This unwillingness to dispense with scholastic terminology and methods of teaching is more evident in the logic and metaphysics dictates and theses than in those concerned with ethics and physics - probably due, as we shall see, to the practical view of ethics taken by the regents in the first case, and to the impact of new scientific ideas in the second.

Another point in which the metaphysics teaching is very similar to the logic teaching is in the distrust frequently shown by the regents of Jesuit authorities, despite the fact that they quote from them. If anything the distrust is even more marked in



the metaphysics than in the logic teaching, since metaphysics had more obvious doctrinal implications. The regents tend to include a fair number of references to English and Scottish Protestant theologians in their dictates and theses. Thus Law (Glasgow, 1699) quotes from William Bates (1625-99), a Presbyterian who wrote works of practical theology. Richard Baxter (1615-91), the Puritan divine who supported the nonconformist cause, features in the teaching of John Wishart (Edinburgh, 1671 and 1676) and Robert Hamilton (St.Salvator's, 1668). Edward Stillingfleet (1635-99), who wrote A rational account of the grounds of the Protestant religion is mentioned by regents in Edinburgh, Marischal College, and St.Leonard's College; and Grant of St.Leonard's (1682) specifically refers to Stillingfleet's Origines sacrae, an apologetic work on a historical basis, published in 1662, in which Stillingfleet asserts the divine authority of the scriptures. Stillingfleet's chaplain, Richard Bentley (1662-1742) is also quoted in the lecture notes. In 1699 John Law of Glasgow refers to Bentley's Sermons against atheism; these were published in London in 1697 and in them Bentley makes full use of Newton's latest discoveries.

Cartesian ideas begin to appear in the lectures and theses of the 1660s and were accepted in the 1670s and 1680s. However, apart from the most whole-heartedly Cartesian regents, there tends to be a strong undercurrent of unease about the implications of Descartes's metaphysics. This is first seen when Descartes's ideas are mentioned, but not yet accepted, in the 1660s; thus Wishart (Edinburgh) says that Descartes denies God's omnipresence; Paterson (Edinburgh) brands Cartesians as both impious and ridiculous; and Hay (St.Leonard's) fears that the Cartesian method places too

much emphasis on the human mind. It reappears in the 1690s once the wave of enthusiasm for Cartesian ideas had abated. As might perhaps be expected, Glasgow's comments on Edinburgh's pneumatology course are full of criticisms about its Cartesianism and the attendant dangers. But Gerschom Carmichael, who can hardly be criticised for being over-conservative, is also unhappy about Descartes's philosophy. He dislikes its scepticism and belittles Descartes's achievement by stressing the unoriginality of his ideas. This growing antipathy to Cartesian scepticism is perhaps most striking at St. Andrews, where the masters had in 1687 recommended that the Meditations of Descartes should be used in the metaphysics course. This was certainly not the view taken by Colin Vilant in 1707 when he referred to the Cartesian method as "this impossible, absurd and dangerous method of doubt;" nor was it approved of by John Loudon in his 1697 theses.

If the regents were troubled about the atheistic implications of Descartes, they were even more worried by the theories of Hobbes, and that "junior Hobbes" (as he is sometimes called), Spinoza. With the exception of Hamilton of St. Salvator's, the regents consistently attack Hobbes and Spinoza, whose doctrines they regard as extremely dangerous.

The views of Henry More are sometimes set against the atheism of Hobbes and Spinoza, and in these dictates and theses they are always viewed favourably. However, More does not receive universal acclaim. His Enchiridion metaphysicum is listed by John Wishart (Edinburgh) as recommended reading, and William Law and Charles Erskine (both of Edinburgh) approve of More's teaching. In Glasgow Blair seems to be favourably disposed towards More's



De immortalitate animae, while at Aberdeen More has his supporters in Alexander (Marischal College, 1669) and Gray (Marischal College, 1673), and at St. Andrews in Hamilton (St. Salvator's, 1668) and Taylor (St. Leonard's, 1707). On the other hand, Cockburn (Edinburgh, 1687), Tinn (Glasgow, 1678) and Carmichael (Glasgow, 1699) all express anti-More sentiments.

Malebranche is mentioned by a number of regents, but usually they do not agree with his teachings.

A movement away from Cartesian metaphysics towards Locke can be seen in the universities in varying degrees in the 1690s. At Edinburgh Law and Erskine implicitly and Stewart explicitly acknowledge their reliance on Locke's teaching. Alexander Cunningham accepts Locke too, though with reservations. The progress from Cartesianism to Locke was less certain at St. Andrews and Aberdeen. In 1707 Taylor's rejection of innate ideas suggests an acquaintance with Locke, though he does not actually mention him. However, John Loudon (1697) thinks that the deist views of Locke are as untrustworthy as Cartesian ideas. Similarly, at Aberdeen, George Skene and James Urquhart favour Locke's teaching, but it is opposed by George Peacock, Alexander Moir and William Smith. Glasgow regents do not appear to have turned to Locke at all when they abandoned Descartes. It is true that Tran refers to Locke's experiments which prove that the mind does not always think, but Carmichael seems unenthusiastic about Locke, and there is no reference to Locke's metaphysics in the Glasgow dictates or theses.

At the same time the works of Jean Leclerc (1657-1736) who was Locke's disciple, are quoted by several of the regents. Mostly it is Leclerc's Physics that are referred to, but there are

also one or two references to his metaphysics. Edinburgh seems to have been receptive to Leclerc's metaphysics, just as it was to the teachings of Locke. Stewart cites Leclerc, and in Edinburgh's reply to St. Andrews' criticism of her course, Leclerc's pneumatology is defended. This criticism by St. Andrews echoes Loudon's dismissal of Leclerc in 1697. At Glasgow too Leclerc was not received with much favour. Gerschon Carmichael disapproves of his views.

All the universities, then, show a movement from Aristotelian to Cartesian metaphysics, and all at roughly the same time. Equally, all show a reaction against Descartes, but this took two different directions. On the one hand there was a movement towards the rational religion of Locke and Leclerc, while on the other there was a distrust of anything which might take away from the supremacy of theology proper. This divergence reflects a recurring doubt, which appears in metaphysics dictates and theses throughout the century, about what metaphysics should encompass. Most of the regents are emphatic that metaphysics should take second place to theology; its task is to defend religion against atheists. This viewpoint is epitomised in Robert Baron's lectures, which were published in 1621 under the title Philosophia Theologiae Ancillans. In them Baron shows the contribution which philosophy, especially metaphysics, can make to theology, and demonstrates the possibility of adapting scholastic philosophy to the needs of Protestant theology.

Yet the metaphysics lecture notes frequently contain subjects which are theological rather than metaphysical. We might expect to find a fair degree of theology in the metaphysics



teaching of the earlier part of the century, when the influence of scholasticism was still uppermost. But we find it also in the later dictates, which contain sections De Deo and De angelis in the pneumatology sections, though one or two regents (e.g. Andrew Massie) reject such subjects as belonging to theology not philosophy. A similar confusion of theology with metaphysics occurs in Glasgow's statement that scriptural quotations should have been included in Edinburgh's pneumatology course, and this despite the efforts of Tran (one of the Glasgow regents who criticised Edinburgh's course) to separate metaphysics from theology in his dictates (though it should be noted that Tran seems to be confused about what exactly constitutes theology, since he has sections De Deo and De angelis). The confusion is probably due in part to the overlapping of dogmatic and natural theology in the dictates and theses. Pneumatology is, of course, largely concerned with natural theology, since it discusses all minds, viz. pure spirits (God and the angels) and the minds of men; thus a certain amount of theology (i.e. natural theology) was bound to be included in the treatment of the subject. The trouble arises from the tendency of some of the regents to introduce biblical quotations into their teaching, thus straying beyond the bounds of pneumatology.

Overlapping does not just occur between metaphysics and theology. As we saw at the beginning of this chapter, metaphysics and logic were considered by the regents to be very closely linked, and frequently topics which are dealt with by one regent under the heading of logic are dealt with by another under the heading of metaphysics. Thus, substance and accident are discussed in the metaphysics lectures of William Blair (Glasgow) and of George

Gordon (Aberdeen), although, as we saw in the previous chapter, these subjects were often considered part of logic. Moreover, the same regent sometimes repeats in his metaphysics lectures subjects he dealt with in his logic lectures.

Other examples of overlapping are to be found between the metaphysics and ethics lectures and disputation. Free-will and the passions are usually dealt with under the heading of ethics, but sometimes, as in William Law's 1699 lectures (Edinburgh) and Colin Vilant's 1708 lectures (St. Andrews), they appear as part of metaphysics.

Finally, and perhaps most surprisingly, treatments of the soul, which we would expect to belong with metaphysics, nearly always feature as part of the physics course. This is due to Aristotle, who considered the mind as a physical rather than a metaphysical entity in his De anima. Commentaries on De anima were included in the physics course during the early part of the century, and even when the regents ceased to comment on Aristotle's books, they still considered sections on anima to be part of natural philosophy rather than metaphysics.

The early lectures at Edinburgh follow Aristotle's teaching on the soul fairly closely, though the emphasis is on the later Renaissance rather than on the medieval scholastics when authorities are cited. Craufurd quotes Zabarella extensively in his 1654 lectures,<sup>1</sup> and so does Pillans in his 1673 lectures.<sup>2</sup> William Tweedie in 1663<sup>3</sup> differs from Aristotle slightly in his division of the subject; whereas Aristotle divides the books on the soul

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1. EUL - Dc.5.122

2. EUL - Dc.6.4-5

3. EUL - Mic.M.645



into sections on animals and plants, Tweedie thinks that the subject should be treated under four headings: de vivente in genere, de vegetativis, de sensitivis and de rationalibus; in this, of course, Tweedie is following Aristotle's commentators.

Later, when Cartesian ideas began to be discussed in the physics lectures, Descartes's treatment of the soul is mentioned under natural philosophy as well as under metaphysics. In 1679 John Wishart objects to the theory put forward by Descartes and Clauberg that the union of the soul with the body consists in a mutual embrace and a physical reaction.<sup>1</sup> Instead he prefers the account of the soul's union with the body which is given by Henry More in De immortalitate animae. However, he quotes Descartes and Clauberg, along with Bacon, Gassendi and Willis in support of the triple division of the soul into vegetative, sensitive and rational. Andrew Massie also mentions Descartes's theories about the soul in 1690,<sup>2</sup> but even though he thinks that the Cartesian definition of the soul as conceptus spiritus in cogitatione comes nearest to the truth, he is not entirely happy with it (a) because the essential concept of a thing cannot be explained through an action, and (b) because the concept or essence of spirit resides in the power of thinking rather than in actual thought.

By the end of the century the sections De anima were tending to become more fully absorbed into the physics lectures. There is less that is purely metaphysical; instead the regents concentrate on what had constituted the first two sections in earlier treatments of the soul, i.e. on the vegetative and sensitive

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1. EUL - Gen.568D; Gen.690D

2. EUL - Dc.7.92

souls. It is in this part of the course that Cartesian and Newtonian theories of light and colour are introduced. In 1699 William Scott<sup>1</sup> splits up the section on the soul, and deals with its vegetative and sensitive faculties in the physics lectures proper; he then has a separate section on anima, which deals with the powers or faculties of the human mind, i.e. the intellect and the will. Scott sets out to prove the soul's immortality, quoting extensively and with approval from Descartes. On the vexed question of the soul's relation to the body, Scott outlines the views of Descartes and Locke (whom he calls philosophus acutissimus) and for further reading he recommends the works of Robert Baron, Derodon, Suarez and Descartes. Other regents lecturing at this time, however, tend to have such discussions in their metaphysics rather than in their physics dictates, and St. Salvator's College explicitly stated in the 1690s that: "We (do not) hold it necessary to add to the Physicks anything de anima, ffor all questions concerning it may be discust in the Pneumatics. And albeit Aristotle, after his Acroamatics and his other books de corpore naturali has added his books de anima, as a pairt of his physicall systeme, yet he himself did not judge the soul to be the proper subject of these books, but handles it ther only because of its relation to the body."<sup>2</sup>

At Glasgow the pattern of the lectures did not evolve in the same way as it did in Edinburgh. The sections on anima tend to be based on the Aristotelian treatment right up to the end of the

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1. EUL - La.III.717

2. Evidence, vol.3, p.218



century. There are occasional references to Cartesian teaching, e.g. the lecture notes taken down by James Napier in 1676<sup>1</sup>. recommend Clauberg's works, but in the main it is scholastics who are cited. The same lecture notes of 1676 also quote LeRees, while Thomas Nicholson (1681)<sup>2</sup> recommends Robert Baron's metaphysical Exercitationes and John Tran (1696)<sup>3</sup> refers his students to Suarez, Heereboord and Kenelm Digby.

However, the treatment of anima in the lectures of Aberdeen and St.Andrews is the same as at Edinburgh. George Gordon (King's College, 1662)<sup>4</sup> gives Annotations on Aristotle's De anima, quoting from Arriaga, Oviedo, Vasquez, Hurtado, Compton, Franciscus Bonae Spei, Suarez and Scaliger. George Martin (St.Salvator's, 1647-48)<sup>5</sup> also comments on Aristotle and cites Zabarella most frequently. George Peacock (Marischal, 1688)<sup>6</sup> incorporates sections on anima into his special physics, and uses Cartesian arguments when he establishes the soul's immortality. James Gilchrist (King's, 1689)<sup>7</sup> also quotes from Descartes, whose views he sets alongside those of the scholastics. James Martin (St. Salvator's, 1684)<sup>8</sup> deals only with the vegetative and sensitive faculties of the soul in his lectures, and so does the King's College physics course of 1702.<sup>9</sup>

This overlapping of metaphysics with so many other subjects is probably indicative of the continuing influence of scholasticism in the Scottish courses.

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| 1. NLS - Ms.2742    | 2. St.A - Ms.36239      | 3. GUL - Ms.Mu.213; |
| Ms.Gen.417          | 4. NLS - Adv.ms.22.7.15 |                     |
| 5. EUL - La.III.721 | 6. AUL - M.182          | 7. AUL - K.156      |
| 8. EUL - Dc.8.15    | 9. AUL - 141            |                     |

Turning to the library lists and the curricula as laid down by the Commissions and the Universities, we find support for the general picture of metaphysics teaching presented by the dictates and theses, i.e. progress from scholasticism through Cartesianism towards Locke and other later philosophers, but with a continuing allegiance to scholastic writers and methods throughout the period, and also a firm orientation towards the writings of Protestant metaphysicians and theologians.

Edinburgh's library lists show, for instance, that in 1639 a copy of Christoph Scheibler's (a German scholastic) Opus metaphysicum was purchased at the same time as works of the English Puritans, William Ames (Bellarminus enervatus) and William Twisse (De scientia media dissertatio). 1653 saw a whole group of accessions of works in the scholastic tradition: the Metaphysics of LeRees, Baron and Burgersdijk, but Clauberg's Philosophy was bought in 1656 and Descartes's Metaphysics in 1657. Henry More's Mystery of Godliness and Philosophical Discourse, Compton's Theology and Charleton's work on the immortality of the soul were all purchased in the same year (1661). Copies of works by Strang were acquired in 1656 and 1661. Edward Stillingfleet's works and More's Mystery of Iniquity appear in the lists for 1664, the Dutch Protestant Gisbert Voet's Philosophia reformata in 1665, and his Pneumatica in 1668, Clauberg's commentaries on Descartes in 1667 and Spinoza's Cartesiana philosophia in 1668. The Hobbes controversy is reflected in the acquisitions for 1668 which include the tracts of Bishop Lucy, Ward, Bishop Bmhall, Pike and Ross against Hobbes. In 1672 More's Enchiridion metaphysicum, Stillingfleet's Sermons against Socinianism, and Hobbes creed examined by a student



of divinity were bought. Works by Baxter, Stillingfleet, Wilkins, Twisse, Glanville, Parker and Bramhall on metaphysics or religion were bought in 1668, 1673, 1676 and 1677, and Derodon's Metaphysics in 1674. In 1679 there is a record of the purchase of Cudworth's Intellectual system of the universe, in 1681 of Poirer's Cogitationes rationales de Deo, anima et malo, in 1682 of Henry More's complete works, and in 1683 of Descartes's Meditations with Cassendi's Doubts and instances against Descartes's Metaphysics and the Replies, and Legrand's Institutio philosophiae secundum principia Descartes. However, the older philosophy is still represented in the purchase in 1691 of de Vries's De natura Dei et mentis humanae determinationes pneumatologicae and in 1692 of his Exercitationes rationales de Deo eiusque perfectionibus. Works by Locke, Leclerc and Malebranche were purchased in the 1690s, and Stillingfleet's Origines sacrae in 1704, yet after the end of the regenting period, in 1709, the library bought a copy of Robert Baron's Metaphysics.

At the beginning of the 17th century Glasgow received a good many donations of scholastic works; e.g. a laureated student presented Ruvius's De anima in 1615, and a copy of Suarez's Metaphysica was donated in 1619. Scheibler's Metaphysica was bought for the library in 1637 and Baron's Philosophy in 1642, works by Molina in the 1650s, Suarez's De gratia et libero arbitrio and Campanella's De sensu rerum in 1655, and Strang's De voluntate Dei in 1657. In the 1660s besides Descartes's works the library acquired Legrand's and Spinoza's writings.

From the 1630s onwards William Spang sent from the Netherlands a large number of works by Protestant theologians and

metaphysicians, e.g. Twisse, Voet, Spanheim. In addition the library bought works by Ames in the 1640s, and by Stillingfleet in 1663. Bishop Bramhall's works were acquired in the 1660s, together with Cudworth's System of the universe. In 1692 James Wodrow, professor of divinity, presented the library with a copy of Twisse's De praedestinatione, gratia et libero arbitrio, while the regent John Boyd presented a work by Richard Baxter. In 1693 Stillingfleet's Origines sacrae were bought, together with further works by Ames, Voet and others, and in the later 1690s works by Locke, Duhamel's De mente humana and Leclerc's Ontologia et Pneumatologia. It is worth noting, however, that a Metaphysica scholastica, autore Gul. Ayleworth was also purchased in the 1690s, together with works by de Vries.

King's College library received Cudworth's Intellectual system and works by Perkins, Stillingfleet, Rutherford, Baxter, Glanville, Ames and Templer in the Scougal bequest in 1684. In the same bequest it received the following scholastic works: Durandus's Summa theologica, Compton's Theologia et philosophia and Suarez's Metaphysica, and also works by Descartes and More, and Strang's De voluntate Dei. The 1700 library catalogue shows that King's College had all the works referred to in the metaphysics dictates and theses.

Marischal College received as a donation in 1632 Cajetan's De anima, Fonseca's Metaphysica and Piccolomini's De anima. Among the books given by Robert Dun in 1657 are Suarez's Disputationes metaphysicae, Fonseca's In metaphysicam Aristotelis, and Vasquez's Disputationes aliquot metaphysicae, while the list of books bought after 1673 includes Descartes's Meditations, A discourse of natural



and revealed religion, and Cheyne's Philosophical principles.

St. Andrews' library list of 1687 contains the following scholastic works: Scheibler's Metaphysics, Fonseca's Metaphysics, Collegii Complutensis Disputationes de anima, Suarez's Metaphysica, Bonae Spei Theologia scholastica, Francisci de Oviedo Theologica scholastica. Protestant writers represented in it include Ames, Twisse, Rutherford, Perkins, Spanheim, Bishop Wilkins (Principles of natural religion), Cudworth (Intellectual system of the universe) and Baxter. Other works include Duhamel's De mente humana and Descartes's works.

Alexander Pitcairn, Principal of St. Salvator's from 1691 to 1693, bought Campanella's Metaphysics for the library, together with Baxter's Catholic theologiae and Owen against Stillingfleet. Towards the end of the century the library acquired by donation Burgersdijk's Institutionum metaphysicarum libri duo and Keckermann's Metaphysica, also Henry More's philosophical writings and Spinoza's Principia Descartes et Cogitata metaphysica. Among the books bought by Alexander Scrimgeour in 1704 for the library are Poiret's Cogitationes rationales and Leclerc's Ars critica.

The university curricula at the beginning of the century contain no mention of metaphysics. Melville had omitted metaphysics from his scheme of university education, probably because it had become inseparable from the scholasticism he was trying to combat; so it was inevitable that it should be missing from the early 17th century curricula as well. This possibly explains why there are virtually no metaphysics dictates as such at the beginning of the 17th century, and why Theses metaphysicae only occur in the graduate theses intermittently.

The first specific mention of metaphysics appears in the university curricula of the 1640s, and it is from this date onwards that metaphysics feature more regularly in the dictates and theses.

I have already shown how the actual teaching in the universities relates to the statement made by the St. Andrews masters in 1687 and to the injunctions of the 1695 Commission. Despite the Commission's recommendations that they be separated, logic and metaphysics were firmly linked at the end of the regenting period, both in the way they were treated in the university teaching, and in the provisions made for the fixing of regents at Edinburgh and Glasgow. The separation of metaphysics and pneumatics that we see in the later dictates is also reflected in Edinburgh's and Glasgow's division of the philosophy course in 1708 and 1727; in both cases logic was to be taught with metaphysics in the first year (Glasgow adding "that part of pneumatics de mente humana"), while pneumatics was left to the second year (in Glasgow's case, the remaining part of pneumatics De Deo).



## Chapter 5

Throughout the regenting period ethics was taught in the third year of the philosophy course. The various statements concerning the curriculum concentrate far less on ethics than on the other subjects. Nevertheless, it was considered a very important part of philosophy by most of the regents, and by some the most important part, since it taught a man how to live well and happily.

As was the case with logic and metaphysics, an overall pattern emerges of ethics teaching in the Scottish universities during the 17th century. Up to the 1660s and 1670s the lectures were mainly commentaries on Aristotle's Nicomachean Ethics. The Aristotelian commentators who are quoted are for the most part the late Renaissance scholastics whose views we have seen discussed in the lectures on logic and metaphysics - Burgersdijk, Derodon, Suarez, Vasquez, Molina, Arriaga, Mendoza, the Coimbra commentators et al. Piccolomini's name<sup>1</sup> also occurs frequently in the notes and theses of regents of all the universities. It is worth noting, though, that at the same time as the regents are citing these scholastic, mainly Jesuit authorities, they also mention the works of English and Scottish Protestant theologians and writers on ethics. Thus, in 1665 William Blair (Glasgow), discussing the question of free will, refers to William Ames,

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1. An Italian scholastic (1508-1578), who lectured in philosophy at Padua and Rome.

William Twisse and Richard Baxter.<sup>1</sup> William Ames (1576-1633) was an English Puritan, who emigrated to the Netherlands in 1610 because of Episcopalian opposition; while there he became professor of divinity at the University of Franeker in Friesland. Ames was known for his practical divinity (i.e. his system of divinity paid great attention to rules of personal behaviour and organisation of the community), and his allegiance to Ramus's philosophy. William Twisse (1578?-1646) and Richard Baxter (1615-91) were also English Puritans. Twisse wrote an attack on the philosophy of Suarez, as well as other polemical works, while Baxter is the author of over 200 religious tracts. The works of Ames are also mentioned by Tran (Glasgow) in 1693; Baxter is quoted by Campbell (St. Salvator's) in 1657, and Twisse by Paterson (Edinburgh) in 1671, and by Cant and Meldrum (Marischal) in 1658 and 1659 respectively.

Scottish Protestant ethical thought is represented by references to Colville (in Wishart's 1668 theses), Strang (in Cant's 1658 theses, in Meldrum's 1659 theses, in Blair's 1674 and 1677 lectures and in Massie's 1680 lectures) and Mackenzie (in the lectures of Wishart (1672) and Kennedy (1692)). William Colville (d.1675), author of Ethica Christiana was Principal of Edinburgh University in the middle of the 17th century. John Strang (1584-1654) was Principal of Glasgow, and George Mackenzie (1636-91), who was King's advocate during the period of covenanting persecution and known in Scottish covenanting tradition as "Bloody Mackenzie", was also the author of legal, ethical and political works.

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1. GUL - Ms.Gen.369; Ms.Gen.379



Henry More's writings are also quoted by many of the regents, though not always with approval. And, at the same time as More's works begin to appear in the dictates and theses, Hobbes's political views are discussed and censured. The doctrines contained in Leviathan are comprehensively discredited, but the point which the regents attack most frequently and consistently is Hobbes's statement about natural law and the foundations upon which society is built. As in the metaphysics lectures and theses, it is Hobbes's materialism with its atheistic and deterministic implications that the regents most fear.

This concern with natural law forms a large part of the ethics teaching, and the views of Grotius, Puffendorf and Cumberland recur frequently in the later dictates and theses.

However, as we shall see in the description of the dictates and theses that follows, the emphasis was above all on the practical nature of ethics, and its usefulness as a guide to life.

We have lectures in ethics or moral philosophy for Edinburgh covering the period from 1613 to 1703. The earliest dictates, up to the 1660s, are commentaries on Aristotle's Nicomachean Ethics. These show the mixture of Aristotelianism and Christianity which we have already seen in the early lectures on logic and metaphysics. Thus happiness is defined as consisting in contemplation of God, rather than in the Aristotelian summum bonum, and appendices on free will, Christian morality and the Christian virtues are frequently added, since these topics are outwith the scope of the Nicomachean Ethics. However, the references to scholastic commentators seem to be less numerous than they are in lecture notes on other parts of philosophy -

possibly because moral philosophy was felt to be a far more practical science than the others, and the regents saw their lectures as providing guidelines to a code of conduct rather than as a scholastic weighing of arguments about nice points of interpretation. It must be remembered also that for Calvinists ethics had a much closer relationship with the Law and Ten Commandments, which made hair-splitting less relevant. Thus in 1672 James Pillans states that whereas Aristotle ranks contemplative higher than practical philosophy, Christians must prefer the latter, as being more useful in leading to happiness, and moral philosophy belongs in this category.<sup>1</sup>

Apart from the inevitable references to Aquinas and Scotus, the first mention of authorities other than Aristotle appears in Craufurd's lectures of 1653.<sup>2</sup> Craufurd quotes Piccolomini's De anima at considerable length, though he frequently disagrees with him. Bellarminus and Pavonius are also mentioned.<sup>3</sup> These lectures are repeated in 1661<sup>4</sup> and Piccolomini is also quoted by Pillans in 1672.

John Wishart's lectures of 1671<sup>5</sup> are the first we have which are not commentaries on Aristotle. The introductory section gives evidence of the strong practical bent which I have suggested was characteristic of the Scottish regents' teaching of

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1. EUL - Dc.6.4-5

2. EUL - Dc.5.122

3. Francisus Pavonius was the author of Summa ethica, published at Oxford in 1668. Robert Bellarmine (1542-1621) was a Jesuit and professor at the University of Louvain. He devoted his energy to the study of Scripture, Church history and patristics in order to systematize Church doctrine against the attacks of the Reformers. At the beginning of the 17th century Bellarmine became involved in a controversy over efficacious grace.

4. EUL - Dc.5.55

5. EUL - Gen.698D



moral philosophy. Wishart states that the aim of moral philosophy is to keep the will under control, and to tame and guide the passions. It teaches what is right, good and useful, and is a study particularly suited to youths, since it helps them to restrain their unruly passions, and its precepts sink deeper into the mind if absorbed in youth. Wishart then proceeds to outline Aristotle's teaching about moral philosophy, and while not actually commenting on Aristotle, follows Aristotle's Nicomachean Ethics very closely. Cicero's writings are also referred to, in particular what Cicero has to say about the cardinal virtues and about natural law. Where authorities are cited they are mainly scholastic, though Wishart does discuss Hobbes's theories about natural law at some length in order to refute them. Wishart himself offers two definitions of natural law, viz. "the law of nature is practical right reason, which teaches moral directives to all men" and "the law of nature is God's will." He then divides the law of nature into three categories: (1) concerns the glory of God, all the duties of religion, and the necessity of worshipping God; (2) concerns self, and may be summarised as the precepts of temperance, under whose guidance we preserve our safety; (3) concerns all precepts governing our actions. Wishart states that in fact this triple division may be simplified into a dichotomy, i.e. the laws of nature concern (1) self and (2) God.

These lectures are repeated in 1675<sup>1</sup> and 1679.<sup>2</sup> In the later lectures Wishart quotes Cartesian ideas about moral philosophy, which were absent from the 1671 lectures. The section on the passions includes the different views held by Descartes, Henry

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1. EUL - Dc.5.96

2. EUL - Gen.690D

More, Cicero, Aquinas and the Stoics. Wishart quotes from Henry More with approval. The 1679 lectures contain additional discussions of Hobbes's views, absent from both the 1671 and the 1675 lectures. For instance, there are three appendices devoted to a refutation of Hobbes's arguments in Leviathan. In the first Wishart states that, contrary to Leviathan, Chapter 6, part 26, a thing is simply good or evil, and the first moral rule is not the love of men, but rather the glory of God. Next Wishart maintains that the natural state is not a state of war, and finally that the aim of natural law is not that of self-preservation at any cost.

As in the metaphysics lectures, we see evidence of Wishart updating his lectures in accordance with current philosophical trends, i.e. the introduction of Cartesianism and the attacks on Hobbes.

Andrew Massie's lectures of 1682<sup>1</sup> move further away from Aristotle, though they remain basically Aristotelian in content. Massie divides ethics into four parts. In the first part he defines the summum bonum, which for Christians is God. Massie discusses what constitutes happiness and, after rejecting external goods and goods of the mind, concludes that contemplation of God is true happiness; wretchedness is absence from God. The second part deals with the virtues. Massie cites Henry More's Enchiridion, but prefers Aristotle's definition of virtue as a mean between two extremes. The cardinal virtues are described, but by far the greatest emphasis is put on justice in all its forms; this merges into a discussion of the different types of

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1. EUL - Dc.5.29



law which, as we shall see, is typical of the dictates on ethics. In the third part Massie moves on to the passions. He describes Descartes's reduction of all the passions to six types, but prefers the teaching of the scholastics on this point. Finally, Massie deals with human actions and their principles, under which heading he discusses Hobbes's theory that philanthropy is the source of morality (i.e. the concept of natural law); Massie argues that there must be something prior to natural law. He also refutes the views expressed by Richard Cumberland in his treatise,<sup>1</sup> and concludes that the first rule of moral philosophy is what is in accordance with the divine will. In this section Massie deals with free will, and after citing Aquinas's definition of a voluntary action, he discusses the theories of Descartes, Hobbes and Spinoza, disagreeing with all of them on the grounds that they detract from man's free will. There is also a reference to the Scottish writer on ethics, Strang, who adopts the Jansenist view of free will.

Robert Lidderdale (1633)<sup>2</sup> divides ethics into the same sections as Massie had done, though he deals with them in a different order; in doing this Lidderdale claims that he is following common practice. Lidderdale seems to be more in favour of Descartes than Massie was; for instance, he adopts Descartes's classification of the passions; but apart from this, his lectures are similar to Massie's.

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1. De legibus naturae, published in 1672

2. St.A - Ms.1955.

Herbert Kennedy's lectures of 1692<sup>1</sup> follow the same pattern; he quotes Descartes quite extensively, and also Henry More's Enchiridion, though he frequently disagrees with the latter. We possess a few fragments of notes taken down from Kennedy's lectures of 1693,<sup>2</sup> in which he refers the student who wishes to learn more about ethics to Francis LeRees, Heereboord, and above all to Henry More's Enchiridion.

William Law's lectures of 1696<sup>3</sup> are less enthusiastic concerning More, whose definition of ethics he rejects. The arrangement of subject matter is different to that of Massie's 1682 lectures outlined above, but the actual content is more or less the same. As usual Hobbes is thoroughly censured, but this time Descartes's explanation of the passions is accepted as being very satisfactory. These lectures are repeated in 1699<sup>4</sup> and 1700.<sup>5</sup> It is worth noting that Law uses Cicero's De officiis as a source book for his ethics teaching, in addition to the Nicomachean Ethics.

Charles Erskine's lectures of 1703<sup>6</sup> are the last we have for Edinburgh for the period we are dealing with, and they epitomise the attitude of the regents to ethics throughout the 17th century. Erskine stresses the practical aspect of moral philosophy and claims that natural law provides us with a code of conduct, setting out as it does the basic rules to be observed in our relations with God, ourselves and others. Erskine's lectures are divided into five sections, viz. (1) On the summum bonum

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1. EUL - Dc.8.118

3. EUL - La.III.152; Dc.8.53

NLS - Adv.ms.22.7.4

Collection

2. NLS - Adv.ms.20.7.5

4. GUL - Ms.Gen.464;

5. EUL - Colin Campbell

6. NLS - Adv.ms.20.7.1



and happiness; (2) on human actions and their morality; (3) on laws (subdivided into natural and positive law); (4) on the particular duties of man; (5) on the moral virtues.

The theses have the same characteristics as the dictates. The earliest are a blend of Aristotelianism and Christianity. William Craig states in 1599 that he agrees with Aristotle that moral philosophy deals with particulars rather than universals, but whereas for Aristotle the source of human happiness lies in human reason, the Christian cannot agree with this, since human reason has been corrupt since the Fall. William King points out in 1612 that the Christian can go beyond Aristotle, since he knows that the highest good is the life to come. The topic most frequently discussed in the early theses is the nature of happiness, with problems of free will (sometimes discussed as part of metaphysics)<sup>1</sup> running a close second.

John Wishart is the first to refer to a modern authority in his theses; in 1661 he repudiates Hobbes's political and moral ideas. Wishart's 1668 theses contain further references to modern authors; the Hobbesian theory concerning the nature of the civil state is again rejected (as indeed it is in all Wishart's later theses, i.e. 1672, 1676 and 1680, where Spinoza's name is coupled with that of Hobbes), and Henry More's views are quoted. On the whole Wishart seems to agree with More, though he thinks that More was unjust to Aristotle in criticising his arguments about right reason. Among the older authorities recommended by Wishart in his theses are some Scots commentators on the Nicomachean

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1. cf. supra p.157

Ethics - Donaldson<sup>1</sup>. and Burnet.<sup>2</sup> Colville's exposition of Christian ethics is also mentioned, together with the works of Balfour, Camerarius, Volusenus and Boethius.<sup>3</sup> Wishart's 1672 theses show similar trends. James Dalrymple, Viscount Stair, formerly a regent at Glasgow University, is cited as a notable exponent of Scots law and how it relates to natural law; his Legis Naturae, Civilis et Scoticae Concordia is recommended. Another Scot, George Mackenzie,<sup>4</sup> is praised for his moral maxims on virtus.

In Wishart's 1680 theses we can see that some of the Aristotelian concepts of morality which were followed in the earlier part of the century are now no longer accepted; for instance, Wishart does not believe that virtue consists in following a middle path, but in aspiring ever higher. Alexander Cunningham's theses (1692) illustrate the same point; he rejects Aristotle's definition of virtue, preferring the following: virtue is "an intellectual force which so dominates the mind by animal impressions and bodily passions that in all its actions it pursues what is best."

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1. Walter Donaldson, (fl.1620). A native of Aberdeen, who later became Principal of the Protestant College of Sedan, where he associated with Andrew Melville.

2. Possibly Gilbert Burnet, a professor at Montauban, who wrote a work entitled Ethicae dissertationes, quibus perfecta et solida philosophiae moralis idea modo accuratissimo exhibetur.

3. For Colville cf. supra p.167. Robert Balfour (?1550-?1625), Scottish philosopher; author of commentaries on Aristotle. Joachim Camerarius (1500-1574), Lutheran humanist; professor at Tübingen and Leipzig. Florentius Volusenus (c.1500-c.1557) had studied at Aberdeen and later taught at Lyons; he disliked the dialecticism of the scholastics, but admired Aquinas.

4. cf. supra p.167



Evidence that the regents viewed moral philosophy as an essentially practical study can be found in several of the theses. Thus, in 1670 James Wood outlines a moral code by which a man should regulate his conduct, and in 1674 he states that the aim of ethics is to rouse men to virtue and teach them to avoid vice. In 1672 Wishart claims that moral philosophy is more important than the other parts of philosophy, since it directs moral action according to the laws of nature, while William Paterson (1679) says that ethics is by far the most noble part of philosophy, and Alexander Cunningham makes a similar statement in 1692. In 1685 Robert Lidderdale draws up a brief practical code of morality, stating that:

1. We should always obey the laws and institutions of our country.
2. That religion should be retained which we have deemed to be the best.
3. For everything else, life is to be lived according to moderate beliefs, which are free from all forms of extremism - such as are commonly accepted by the wisest men of our society.
4. We should study always to have control of ourselves rather than of fortune.

William Paterson's theses of 1671 give an interesting summary of the different views concerning the source of morality. The view that morality is dependent on God's whim is supported by Twisse, Rutherford and Hobbes, following Cyprian, Augustine, Athanasius, Calvin et al. Pareus, Rivet, Wendelinus et al. believe that natural law is the source of morality. Others, such as Melanchthon and Tilenus, follow a middle path between the two views. Paterson is in favour of the second opinion, i.e. that

natural law is the source of morality. In Paterson's 1675 theses Hobbes, as usual, is vigorously refuted, and Paterson concludes that there are two requisites for moral action: libertas and lex.

All the regents bring discussions of natural law into their theses. We have already seen Wishart recommending the works of Viscount Stair, and Paterson claiming that natural law is the source of morality. James Wood in 1674 takes Grotius's definition of natural law, and Grotius is also quoted by other regents, e.g. William Paterson (1679). Alexander Cockburn (1684) cites Adam Blackwood and George Mackenzie, both Scottish writers on natural law, and in 1688 he gives Richard Cumberland's definition of natural law. Finally, William Law recommends Puffendorf in 1705.

Glasgow's dictates and theses deal with much the same topics as Edinburgh's. Thomas Kennedy's notes of 1637-43<sup>1</sup> contain discussions about the nature of happiness; his conclusion is the Christian one that happiness consists in love of God, and he comments unfavourably on the "false and bastard Peripatetic happiness." Kennedy's notes also contain questions about free will, the passions and the virtues. The mixture of Aristotelianism and Christianity appears very succinctly in the rules for moral conduct given by Hugh Walker and John Young in their lectures of 1656-57;<sup>2</sup> divine will is the first and extrinsic rule; the judgment of right reason is the second and intrinsic rule. Andrew Burnet's lectures (1661)<sup>3</sup> are largely concerned with free will and the passions. Reference is made in them to the

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1. GUL - Ms.Gen.186

2. St.A - Ms.36230

3. NLS - Adv.ms.22.6.5



works of Suarez, Vasquez, Molina, Arriaga, Mendoza and the Coimbra commentators.

In 1665 William Blair gave a commentary on Aristotle's Nicomachean Ethics;<sup>1</sup> in addition to scholastic commentators he refers to Ames, Twisse and Baxter. By 1674 Blair had introduced Cartesian ideas into his lectures,<sup>2</sup> though they are still based on Aristotle. He divides his subject into five sections, of which the first deals with happiness. Blair quotes Oviedo, LeRees and others, concluding that contemplation of God constitutes formal happiness; he remarks that Peter Galtruchius<sup>3</sup> has given an admirable exposition of this concept. Blair mentions the Cartesian belief that "supreme good and happiness reside in free will;" he thinks that Descartes is not very far from Epicurus in this idea. The second section deals with the innate principles of human actions, and is almost entirely scholastic, quoting Compton, Aquinas and Cajetan. Hobbes's theory that all actions are necessary is refuted. The third section is on the external principles of human actions; for an account of the passions Blair refers the student to Rainaudus, Cassinus and Descartes.<sup>4</sup> In the fourth section Blair deals with the external principle of human actions, and the final section is devoted to human actions per se; in this last section Blair recommends Strang and Grotius -

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1. GUL - Ms.Gen.369; Ms.Gen.379

2. EUL - La.III.735

3. Probably Pierre Gautruche, author of a number of works including Historia novorum dogmatum. Cum idea universae theologiae scholasticae per theses digestae (EM lists new edition, 1673) and Philosophiae ac mathematicae totius institutio (EM lists new edition, 1665)

4. Théophile Raynaud (1583-1663), Jesuit, who taught philosophy and theology at Lyons. Cassinus is probably Nicolas Caussin, and the work referred to may be La Cour Sainte, pt.1, tom.3: De l'empire de la raison sur les passions.

an indication of the same preoccupation with natural law that we saw in the Edinburgh dictates and theses. Blair's 1677 dictates<sup>1</sup> repeat those of 1674.

The subject matter of Thomas Nicholson's lectures of 1675<sup>2</sup> is basically the same as that of Blair's lectures, but Nicholson's organisation of it is slightly different. He has four sections: on happiness, on the passions (in which Descartes's definition of the passions is mentioned, without much enthusiasm, however), on the principles and morality of human actions (where Hobbes's teachings are rejected), and on the virtues.

We have four sets of dictates from the lectures of John Tran, dated 1681,<sup>3</sup> 1687,<sup>4</sup> 1693<sup>5</sup> and 1699<sup>6</sup> (the last, taken down by William Bowie, being probably rather than definitely Tran's<sup>7</sup>). The notes are basically the same and deal with similar topics to the other Glasgow dictates; the only difference between the two earlier sets of notes and the 1693 ones is that the latter expand slightly on certain subjects, most notably in the appendix on conscience, which appears in the section on human actions. Descartes is quoted on the passions and Henry More on the intellectual principles which guide all morality.

Tran's 1699 lecture notes are of interest not so much for their moral teaching, which is similar to that of the earlier lectures, but for the account they contain of the ideals to be sought for in a university education. First of all the subjects studied in the universities are outlined. This is followed by a

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1. GUL - Ms.Gen.10

2. NLS - Adv.ms.5.2.2.

3. GUL - Ms.Mu.227

4. NLS - Ms.9386

5. GUL - Ms.Mu.208

6. GUL - Ms.Gen.69

7. cf.supra p.130



description of the duties of a teacher: he should be a good man and have skill in teaching; he should take a fatherly concern for his pupils, should recognize their various abilities, have patience and wield discipline. In turn the pupil should live a Christian life, have a love of learning, show respect and obedience to teachers, and keep away from harmful books. It is noteworthy that for both teachers and pupils the primary requisite is that they should live moral, Christian lives - a clue to the priorities in 17th century Scottish university education, which we find stressed again and again both in the various Commission and university records, and in the repeated claims made by the regents that ethics is the most important part of philosophy, and that man's highest aim is to love God.

The order of the answers to the question "how is one to discern a pupil's ability?" is revealing, showing what the regents were striving most to cultivate. The list is as follows: (1) The main sign of ability is memoria, followed by (2) imitatio, (3) an inquiring mind, (4) modesty, (5) a desire for learning, (6) a thorough assimilation of knowledge. Clearly memory was the most important because the system was based on the dictating of notes, whose arguments the students had to be able to master for the examinations by disputation. Imitatio probably came into its own more in the disputations, when pupils used the syllogistic method of debate they had been taught in the logic course.

The next set of lectures on ethics that we have for Glasgow is that given by John Law in 1699-1700.<sup>1</sup> The treatment

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1. GUL - Ms. Lu. 49

is again fairly traditional. Law gives a brief compendium of Puffendorf's Ethics, but thinks that the teaching of the old philosophers about morality is to be preferred. He dislikes the idea that socialitas is the base on which moral rules rest; he also considers that to claim usefulness to mortal life as a criterion of happiness is to debase it. One concession to modern ethical thought that Law makes is to reject the Peripatetic theory of the passions in favour of the Cartesian.

The notebook belonging to Colin MacLaurin which contains metaphysics lectures, probably dictated by Gershom Carmichael,<sup>1</sup> also includes two sets of ethics lectures. Although, since it is housed in the British Museum, this notebook strictly speaking falls outwith the scope of the present survey (viz. student notebooks in the libraries of the four older Scottish universities and in the National Library of Scotland), I shall discuss its contents, since, apart from theses, we have no other indication of Carmichael's ethics teaching.

In the first set of lectures "the more general principles of moral instruction are set out." Carmichael begins by demonstrating that each man is under a binding obligation to adjust his actions to the will of God. He discusses the nature of the summum bonum, concluding that man's supreme happiness consists in enjoyment of God. This is followed by a treatment of the nature of moral action, where Carmichael concludes that: "It is clear that the morality of our actions seen as a whole must be determined according to three headings: i.e. (1) according to the importance of

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1. cf. supra pp.131-134



the action itself, regarded both on its own and vested with all those circumstances previously known and chosen by us, which could urge either its morality or immorality; (2) according to the kind and degree of knowledge we have about the action and its circumstances pertaining to morality; (3) according to the greater or lesser inclination of the will towards such an action, including also the motives by which it was guided to that inclination." Chapter 3 of the first part is entitled On divine law as the supreme guide to moral actions, and in particular on natural law. In it Carmichael dismisses the views of those who deny the existence of natural law; he claims that there is insufficient proof of the existence of positive divine law, promulgated for all men; consequently some other reason must be sought for that universal law common to the whole of mankind, viz. natural law. Carmichael then examines various concepts of natural law, quoting Grotius and Puffendorf. It is worth noting that Carmichael edited an edition of Puffendorf's works.<sup>1</sup>

The second treatise repeats some of the points made in the first, e.g. the discussion about the morality of action. Here Carmichael's own beliefs concerning natural law are more clearly stated than in the previous treatise. "As regards the precepts given us by natural law," he says, "we surmise God's will from the fact that certain actions in this state of affairs we know, chosen by such creatures as we understand ourselves to be, are singularly appropriate as evidence of that devotion which

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1. I have been unable to discover the exact date when this appeared (i.e. whether it was by the time of the lectures, ca.1713); the British Museum, National Library of Scotland, Bibliothèque Nationale, and other libraries have copies of the work, dated 1724, but in every case it is the second edition.

we owe to the deity; and hence the omission of these actions, or contrary actions, produce a contrary feeling by their very nature. However, it by no means follows that actions commanded or forbidden by natural law acquire their morality without any reference to the will of God himself; since regard for the divine will is obviously present to a very great degree in every duty which we offer up to God. It only follows that the commanding or forbidding will of God is so closely connected with what those actions involve, regarded either in themselves or with reference to the circumstances which attend them, that it is inconceivable that the one set of actions in this state of affairs we are supposing was not laid down, and the other set not forbidden; nor is it to be wondered at that the state of affairs we are presuming contains sufficient indications of the divine will. Therefore, such actions are necessarily, though not however intrinsically (i.e. with regard to divine law) good or bad.

Indeed, since the necessary goodness or evil of actions of this kind is based, as we said just now, on that manifestation of the divine will which reveals itself through nature, it follows that a man is no more justified in proceeding to argue (without regard for the divine will) from the inextricable bond linking actions and the morality which attends them, that the morality corresponds with the actions, than if he were to base an argument concerning actions commanded or forbidden by positive law on the grounds that it is necessarily true that if actions are commanded by divinely inspired laws they are good, and if they are prohibited by the same they are bad.

Thus, it is clear in what sense natural law can be called



immutable or mutable: since it is obvious that whatever the signs by which the will of the supreme legislator is promulgated in order to lay an obligation upon us, as long as these signs remain, the law retains the same force, and we remain under the same obligation. If, therefore, the majority of the actions which are to be carried out or left undone by us are revealed by the will of God working through the universal and constant uninterrupted course of nature, it is obvious that as long as nature remains in the same uninterrupted course, it has the same effect in directing our actions, i.e. natural law cannot be changed unless nature itself changes.

Nevertheless, although many of the precepts of natural law presuppose this among other conditions - that God has never arranged otherwise by the positive declamation of his own will, it sometimes happens that God, not altering natural law, but varying the condition of the object, makes a thing just by his positive command, which otherwise would have been unjust by natural law, or vice versa; this is not surprising, since in certain cases civil law can have the same effect; this, however, no more changes the law of nature or dispenses with it than a creditor diminishes the law concerning the payment of debt by remitting what is owed to him.

From what has been said, it is clear that knowledge of natural law is not innate to men's minds (if we want to use the term in its strictest sense), nor is it inscribed there by nature, as some believe; nor is it to be learnt from the mere consensus of opinion of various races and ages, whether speculative or practical, as others contend; but rather it is to be derived from the nature of things and their uninterrupted course, and a proper use of reason."

I have quoted this section on natural law at some length, since Carmichael's stance on this is fairly typical of that taken by all the Scottish regents who deal with natural law around this period.

For the same reason, Carmichael's comments on Hobbes's philosophy are worth quoting. He says: "It is obvious that Hobbesian philosophy is based on absurd and false tenets. These tenets are such that what are called natural laws are not laws at all, and do not entail moral obligation before they are ratified by civil law, and consequently nothing prior to civil laws is morally good or bad, just or unjust; moreover, nature is supposed to have given justice to everybody in every case, and the state of nature is a state of war; these and numerous other similarly monstrous dogmas all seem to have derived from two particular sources: (1) The author has not paid sufficient attention to that lucid promulgation of natural laws which we set out carefully above and others have set forth with even greater clarity, where we pointed out that not only are certain actions useful to every single man, and their opposites harmful, but God has commanded the former types of action to be performed by men as tokens of the devotion they owe him, and has forbidden the latter which express contrary sentiments; (2) In considering human nature, the author exaggerates out of proportion the disorderly emotions which usually lead men to precipitate action, forgetting that men also possess the power of reason, with the help of which it is not difficult for them to perceive that to act on the prompting of certain emotions is scarcely conducive to their own happiness or safety; and consequently they can at least check these passions so that they do not erupt in actions harmful to human fellowship."



Carmichael's attitude concerning man's social obligations is as follows: "A healthy social life consists in each man protecting his own right in such a way that he takes due account of the suitability of any given law, whether perfect or imperfect, according to the theory of the natural equality of every other man. Thus it follows that in marking out guidelines for the duty incumbent upon each individual with regard to other men, we can follow no better path than to consider carefully the various rights which pertain to separate individuals and the different foundations on which these rights are based; for from these one can readily deduce what obligations correspond to each individual right."

He then describes in considerable detail the various contracts which we encounter in our relations with other men, e.g. agreements regarding ownership, loans, commissions, deposits. These contracts all concern men who are "bound together by the link of general fellowship, in which state all are equal, so that however much they are bound to the fulfilment of duties which have their source partly in the common obligation, and partly in the voluntary contracts of individuals, one man is never subject to the will of another in carrying out these duties; rather, each man has the right to use his own judgment in deciding what should be done in given circumstances according to the law common to all."

Carmichael continues with a description of the links between parent and child, husband and wife, and the members of a state. He does not however discuss the relative merits of different types of government as some of the regents do (particularly in Aberdeen, as we shall see below).

The theses support this picture of ethics teaching at

Glasgow. Dalrymple's of 1646, those of 1663, and Blair's of 1671 are Aristotelian. John Boyd states in 1693 that moral philosophy is the most useful part of philosophy, and that ancient ideas of the summum bonum have been replaced by the Christian one. Hobbes is censured for detracting from our free will, and Boyd considers that in this he is following the Stoics. John Law (1698) also stresses the usefulness of ethics. Gershom Carmichael's 1699 theses do not have much to say on the subject of moral philosophy; in them he merely gives a few basic laws of ethics, and outlines the teaching of various authorities on natural law. By contrast the main part of his 1707 theses is concerned with ethics.

Carmichael states that man has a twofold moral duty - to love God and promote the happiness of the human race. Providing it does not harm anyone else, whatever contributes to the good of one individual also contributes to the universal good. Carmichael then proceeds from a discussion of the duties which are owed by a man to the human race to a description of the nature of contracts; Grotius is quoted and Carmichael refers to Puffendorf's method favourably, claiming that he has used it in teaching his students. Loudon's theses for the following year are also concerned almost entirely with ethics. After stating that moral philosophy is a practical discipline, Loudon gives some basic rules for moral conduct; he then, like Carmichael, describes the different kinds of contract that exist in a civilised society.

To Glasgow fell the task of composing the ethics part of the uniform course proposed in the 1690s. We have no trace of the actual course, but it was obviously composed and circulated among the other universities for their comments. We know too that Tran



composed it.

St.Andrews' criticisms of the course are fairly lengthy and cover a wide variety of points. First of all the method is criticised for being too difficult for students, and out of line with the custom of the schools; the geometric method should have been followed. Next St.Andrews objects to the excessive reliance on scriptural quotations, instead of reason, to prove assertions; moreover, many of the questions dealt with are theological rather than ethical, and are treated in a theological manner. The didactic and elenctic parts are confused; the whole work is too prolix and is burdened with foolish questions; the definition of bonum is unsatisfactory; Descartes's own method, which is succinct and clear, should have been used in expounding the Cartesian theory of the passions; Tran gets many of Descartes's definitions wrong, and is too prone to attack Descartes.

A meeting was held to discuss St.Andrews' animadversions on Glasgow's Ethics. The following regents attended: Taylor and Arnalt from St.Andrews, Tran from Glasgow, Peacock from Aberdeen, and William Law from Edinburgh. Tran claimed that he did not remember that "in his work he brings testimonies from Scripture without arguments from reason, and if any do so occur to him he will amend them." Various resolutions were passed on the individual points; some were referred to the Commission, some to the author for clarification, some were passed over, and some recommendations were made by the meeting.

Edinburgh's observations begin with the statement that a well composed system of ethics would be one of the best and most useful parts of philosophy, especially in this loose and debauched

age. Glasgow's course is then criticised on various grounds:

1. It neglects the Law of Nature, "though it be the great foundation of all Ethics."
2. Quotations from Scripture are not philosophy.
3. "We disapprove of the author's pretending to imitate the mathematical method by postulata, axiomata etc., and in this he has gone contrary to the intentions and rules of the commissioners from the respective colleges in the kingdom anent the method and style of all the parts of this intended course of philosophy. Moreover, Glasgow's method is not even truly mathematical."
4. "We think our author is too much addicted to the old logical method of assigning efficient, material, formal and final causes etc. on every subject almost, which method seems not only needless but even ridiculous in some places, and looks as if the author had purposely designed to render this work disagreeable to the genius of this present age."
4. The author skims over important questions, e.g. the law of nature, and dwells too much on useless and trivial questions, e.g.

Whether boasting and arrogance are vices?

5. His attitude to Descartes is contradictory: "after he has found fault with Cartes for reckoning up so many distinct passions, he at last takes notice that they may all be reduced to six primary ones, and confesses that Cartes is not to be blamed for so reducing them."
6. "The author does not sufficiently take of the difficulties against the schoolmen."

Tran did not answer all of Edinburgh's criticisms. He merely (a) agreed to add arguments from reason to his scriptural



examples and (b) maintained that he had dealt sufficiently with natural law.

Aberdeen's comments were made after those of St. Andrews and Edinburgh, and the representatives say that they agree with the points already made, adding only two of their own:

1. That the method of Glasgow's Ethics did not agree with any of the other parts of this system of philosophy and that though it appeared to be, it really was not a geometrical method.
2. That the matter was somewhat prolix and had too many questions of theology, law canon and civil, art military and other matters that did not belong to genuine ethics.

The main point that emerges from the criticisms of St. Andrews, Edinburgh and Aberdeen is their impatience with Glasgow's conservatism. We have already seen a distrust of new philosophies in Glasgow's comments on St. Andrews' metaphysics and logic courses, and on the whole the Glasgow regents seem to be very timid of new authors.

For King's College we have six sets of dictates on moral philosophy covering the years 1666 to 1702. Patrick Sandilands' lectures of 1666<sup>1</sup> are commentaries on Aristotle's Nicomachean Ethics, and we find in them the customary blend of Aristotelianism and Christianity. The notes are incomplete, but so far as they go, they comprise discussions of happiness, the passions, the morality of human actions, free will and the virtues. We have three sets of lectures dictated by Henry Scougal, two of which are dated 1669<sup>2</sup> and 1678;<sup>3</sup> the third is undated;<sup>4</sup> all three are exact

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1. NLS - Ms.2816

2. AUL - K.159

3. AUL - 1026

4. AUL - K.155

duplicates. Scougal starts out with a statement of the practical nature of moral philosophy: the aim of ethics is to enable us to live well, and because of this practical aim, we should not get bogged down in arid debating. In this he is typical of Scottish regents. The lectures are divided into five parts. The first part deals with the nature of happiness in general, and after rejecting the usual categories of goods of fortune, the body and the mind, Scougal gives the traditional Christian verdict that true happiness consists in contemplation of God. He then moves on to discuss virtue. Hobbes's view that the natural human condition is a state of war is disputed, and Scougal also dislikes the belief that morality depends on God's will; if this were so we could be certain of nothing; the goodness or badness of an action must be intrinsic and unvarying. The first rule of moral action is the "governing of right reason" and only spontaneous actions can be judged moral or immoral. The third section deals with the passions, for which Scougal follows Descartes's classification. More and Boyle are spoken of with approval, and the student is referred to Boyle's Amor seraphicus. Next Scougal deals with the virtues. He thinks that the Aristotelian division of the virtues is not entirely accurate, but it is commonly followed, and everything can more or less be reduced to his scheme; accordingly he proposes to adopt it here. Under the chapter on fortitudo Scougal discusses at some length the question of whether a Christian can engage in war and under what circumstances - a question which looms large in 17th century ethics dictates. As in many of the other dictates, the chapters on justice take up far more space than those on the other cardinal virtues. The final section deals with the



acquisition of virtue and borders very much on theology. Scougal touches on the debate between Catholics, Calvinists and Remonstrants on the doctrine of election. When discussing free will, he describes how Jansen tried to cut through rather than undo the knot of difficulties concerning free will; Jansen was followed by John Tran of Glasgow; both of them confounded libertas with voluntas and provided very unsatisfactory solutions. Finally, Scougal has a short section on the nature of society and government, in which he claims that the best type of government is an enlightened monarchy, and that it is unlawful ever to resist the supreme magistrate.

Scougal's lectures seem to have become the standard course at King's College, since they appear again in 1693 in the same notebook that contains the standard metaphysics course.<sup>1</sup> This time they are not attributed to Scougal, but merely entitled Ethicae seu philosophiae moralis enchiridion.

At the beginning of the 18th century (in 1702) George Skene provided his students with A manual of moral philosophy in which he follows Henry More.<sup>2</sup> Skene favours More's definition of good, virtue and the passions (where More adopts the Cartesian classification); More's Tractatus de animae mortalitate is cited, and Skene ends with a section on the nature of government similar to that in Scougal's notes.

We have two sets of ethics lectures for Marischal, delivered by George Peacock in 1688,<sup>3</sup> and by Alexander Moir in 1701,<sup>4</sup> the second of which is probably a duplicate of the first - further evidence for the existence of a uniform course in the Aberdeen

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1. AUL - K.153

2. EUL - Dc.5.33

3. AUL - M.182

4. NLS - Ms.9389

colleges. The lectures are divided into three parts, part 1 dealing with the summum bonum, part 2 with the passions (for which the Cartesian division is adopted) and the virtues (basically Aristotelian) and part 3 with free will. As with the King's College lectures there is a final section on the nature of society, and in fact the arguments and conclusions are virtually identical.

It is interesting to note that Aberdeen seems to have been the only university which consistently included sections on politics in its ethics teaching. In all the universities the regents refer to Aristotle's division of the subject into what concerns man himself, and his relations with family and state, and the St. Andrews masters recommended the inclusion of politics in their proposals for a course in 1687. However, most of the lectures are concerned only with the first part of Aristotle's Ethics. The lecture notes taken down by William Bowie at Glasgow in 1699 and probably dictated by John Tran are the only ones I have found outside Aberdeen which deal with politics and economics in any detail. These notes discuss the best form of rule and conclude that it is monarchy; they also describe man's relations with his family - a subject which tends to be passed over in the Aberdeen notes since, as Scougal says in 1678, it is unnecessary to deal with the family separately, since the family is only a miniature state.

There is a further set of lecture notes preserved in Aberdeen University Library on Aristotle's Nicomachean Ethics, bearing the name Thomas Forbes and the dates 1602 and 1603.<sup>1</sup>

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1. AUL - 116



There does not appear to have been a regent called Thomas Forbes at either King's or Marischal College in the 17th century (though there was a William Forbes regent at Marischal in 1602), so perhaps Thomas Forbes was the name of the student who took down the notes.

The graduate theses for Aberdeen fill out this picture of ethics teaching. The most frequently recurring topics in the early theses are the nature of the summum bonum and free will. In 1636 David Leech praises Aristotle's definition of the summum bonum as being most consistent with the teachings of Christianity. Piccolomini is quoted frequently (e.g. by William Lesley (King's, 1625), John Lundie (King's, 1626), Andrew Strachan (King's, 1631)). David Leech (King's, 1634, 1635 and 1636) does not always agree with Piccolomini's views, but he acclaims him in his 1636 theses as the philosopher who has given by far the best account of ethics. Other authorities quoted include Keckermann (by William Lesley (King's, 1625) and George Meldrum (Marischal, 1659)), Vives (by Andrew Strachan (King's, 1631) and the Coimbra commentators, who are generally looked upon with disfavour, e.g. by Andrew Strachan and even more by David Leech; Andrew Cant (Marischal, 1654) also disagrees with them.

David Leech's theses of 1633 contain an incidental reference to contemporary political events which shows where his (and presumably King's College's) allegiances lay. He refers to Charles I quelling a rebellion in the north of Scotland, which he describes as insolentia.<sup>1</sup>

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1. Possibly the rebellion of the Clan Ian in North Argyleshire in 1626 which was crushed by the Marquis of Argyll.

The preoccupation with ius and lex which we have seen to be so typical of Scottish ethics teaching features in John Ray's 1643 theses, in Andrew Cant's 1654 and 1658 theses, and in George Meldrum's 1659 theses, all for Marischal College.

Robert Forbes (Marischal, 1660) divides moral philosophy into two parts, both of which are equally necessary in equipping young people for life: "one is theoretical, and discusses the nature, causes and properties of morality; the other is practical and gives precepts for living well." As in Leech's 1633 theses there is a contemporary slant. Forbes states that "if a ruler does not adhere to the true religion, he does not therefore cease to be the legitimate ruler; far less does he deserve the name of tyrant. If any pact or promise of safe conduct has been granted to religious dissenters, the ruler must abide by this. Nothing is more abhorrent than this statement; one need not keep faith with heretics." This statement has an all too relevant application to the 17th century Scottish religious scene.

A qualified adherence to scholastic ethics continued until the 1670s. Cant frequently cites such writers as Vasquez, Arriaga and Oviedo in his theses; so does Meldrum, and Alexander (Marischal, 1669) condemns the teachings of Hobbes, More and Descartes, reserving his praise for Aristotle's Ethics.

By 1673, however, we see a change of viewpoint in Thomas Gray's theses for Marischal College. Gray blames Aristotle, Aquinas, Bonaventura, Cajetan and all the scholastics for their attitude to ethics; they think of the subject as an occasion for displaying their knowledge, not as providing a rule for living. More is praised, since in his Ethics there is nothing which serves



merely for idle disputation; More's teaching contains only useful moral precepts. Gmy adopts More's definition of ethics as "the art of living well and happily," and also his definition of virtue. When discussing the passions, Gmy follows the Cartesian classification.

George Middleton (King's, 1675) also approves of More and Descartes. In addition he accepts Richard Cumberland's definition of positive law and, rejecting Hobbes's exposition of the law of nature, he defines it as consisting in "striving to the best of our ability for the common good of the whole community of rational beings."

As might be expected from his general anti-Cartesianism, Robert Forbes (King's, 1680) attacks Descartes's treatise on the passions as being contrary to both faith and experience, and accuses him of being both Hobbesian and Machiavellian.

However, the other regents of this period support Descartes, and also Henry More. Thus George Fraser (Kings, 1691) adopts the Cartesian classification of the passions, though he denies that animals are automata. He states that the aim of ethics is to incite men to virtue and keep them from vice, and that the law of nature, contrary to Hobbes, is based on benevolence towards all men. Alexander Moir (Marischal, 1691) is strongly in favour of Henry More, whose definition of virtue he holds to be the best we have. Alexander Fraser (King's, 1697) does not mention More's name, but his definition of ethics is More's, and he lists various essential moral rules. The regents at the beginning of the 18th century tend to devote most of their theses to natural philosophy, but they nearly all list some rules of moral conduct, obviously considering this to be the essential part of ethics.

The political bias seen in Leech's and Forbes's theses in the first half of the century is even stronger in the second half. John Buchan's 1681 theses are very political. After rejecting Hobbes's theory about the origin of civil power, Buchan upholds the idea of monarchy, condemns all rebellion on whatever pretext, and supports the claims of James, Duke of York, to succeed Charles II. Similar arguments are put forward by James Lorimer (Marischal, 1683). Even more pro-Stuart are Thomas Burnet's 1686 theses, in which the Divine Right theory is set forth in some detail; these theses, which also speak in slighting terms of the Reformation, were to be the occasion of Burnet's dismissal from his post as regent at Edinburgh (where he went from Marischal) after the 1689 Revolution.

The later theses continue to demonstrate the regents' interest in natural law, e.g. Thomas Burnet's theses have a quotation on the title page from Grotius's De iure belli et pacis, and within the theses Grotius's teachings are quoted.

St.Andrews lectures in ethics cover the period from 1642 to 1716. The earliest are commentaries on Aristotle's Nicomachean Ethics. Thomas Glegg's introductory comments of 1649<sup>1</sup> throw an interesting light on how Aristotelianism was reconciled with Christianity in the minds of the regents. After defining moral philosophy as "a practical habit directing human actions in accordance with the dictates of right reason," Glegg points to the difference between theology and moral philosophy: the end of theology is spiritual good, the end of ethics is moral good;

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1. EUL - Dc.5.45,45 \*



moreover, theology depends on divine revelation. Glegg realises that some people hold that pagan virtues should not be taught in Christian schools, but he disputes this, pointing out that pagan physics and metaphysics are already taught; in any case, divine law was inscribed on the pagans' minds, and no-one can dispute that the pagans have defined the moral virtues accurately.

Towards the end of the period when ethics lectures were commentaries on Aristotle we find some of Aristotle's doctrines being questioned, and not just where they obviously diverge from Christian teaching (e.g. on the nature of the summum bonum). For instance, in 1658 William Campbell, lecturing at St. Salvator's, objects to the implication of mediocrity in the peripatetic definition of virtue, and prefers the following: "virtue is a chosen habit whereby the will is inclined to act according to the first rule of morality."<sup>1</sup>

The first lectures on ethics at St. Andrews which are not commentaries on Aristotle are those delivered by John Hay at St. Leonard's in 1670.<sup>2</sup> He divides his material into two parts, dealing first with man's ultimate end (i.e. the nature of the summum bonum and of happiness) and secondly with free will. The main authorities referred to are scholastic: Francis LeRees, Suarez, Fonseca, Molina, Thomists, Scotists et al. However, Henry More's Enchiridion is also mentioned and recommended.

After Hay's lectures there is a considerable gap before the next set of ethics lectures, which belongs to the early years of the 18th century. Thomas Taylor, lecturing at St. Leonard's

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1. St.A - Ms.4354

2. EUL - La.III.722

in 1707,<sup>1</sup> deals with moral philosophy under six headings:

Chapter 1: Happiness and the summum bonum

Chapter 2: The laws of nature

Chapter 3: The nature of moral evil and good

Chapter 4: On man's freedom in choosing his actions

Chapter 5: On the passions. Taylor rejects various definitions of the passions, including the Cartesian, on the grounds that they refer all passions to appetite or the sensual faculty and the union of soul with body, although there is no reason for taking these views. The classifications of the passions employed by both Aristotle and Descartes are ultimately reducible to the effects of love or hatred. Taylor does not have time to examine these different opinions, so proposes to discuss the passions under the two headings of complacentia and displacentia.

Chapter 6: On the virtues.

Colin Vilant's lectures of 1708<sup>2</sup> are on much the same lines as Taylor's, as are John Craigie's in 1710 and 1716.<sup>3</sup> Craigie recommends Descartes's work on the passions, and also Cumberland's treatise in which he attacks Hobbes.

It should be noted that all the regents stress the practical nature of moral philosophy.

Up to the 1660s the St. Andrews theses contain a conventional mixture of Aristotelian and Christian teaching; the main topics discussed are the nature of the summum bonum, happiness, free will and the virtues; a distinction is frequently drawn between acts of the intellect and acts of the will, and the regents are aware of the implications this has for our moral actions. Piccolomini

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1. St.A - Ms.5144

2. St.A - Ms.5076

3. St.A - Ms.5136; Ms.167



is quoted in 1627 by John Barron, and from then onwards his name appears fairly frequently, together with other scholastics.

William Campbell mentions Baxter in 1657, and the first of his Theses ethicae epitomises the attitude of some of the regents in their teaching of moral philosophy; in it he states that "Ethics is taught incorrectly if we do not progress from Aristotelian paganism to the oracles of the Gospel of truth."

Hamilton's moral philosophy theses of 1668 are as unorthodox as his logic and metaphysics theses, in that he defends Hobbes, pointing out that liberty is not entirely inconsistent with materialism. Hamilton also discusses More's definition of happiness and Descartes's theory of the passions.

William Sanders's theses of 1674 are thoroughly Cartesian. He follows Descartes's teaching on free will, the passions and virtues, and the rules of moral conduct, and quotes extensively from Descartes's Meditations and Method. Richard Cumberland is recommended on the laws of nature.

In 1679 Alexander Cockburn rejects Hobbes's pernicious theories and also criticises More for his theory about a faculty distinct from good or evil, which he calls boniforma.

James Martin's theses of 1681 are strongly political and obviously lead on from his dedicatory epistle to James, Duke of York. In them he upholds the principle of monarchy and the Divine Right theory, quoting Buchanan's and Hobbes's accounts of the derivation of royal authority; he concludes by stating that one should not take arms against a king for any reason whatsoever, even religion.

The St. Andrews theses of the 1690s are mainly concerned

with physical theories and contain very little moral philosophy, apart from occasional references to Hobbes's wrongheadedness. Alexander Scrimgeour in 1697 rejects the belief which he states is held by Puffendorf and Cumberland, viz. that moral obligation is rooted in a system of rewards and punishments; he links the name of Pierre-Sylvain Régis with that of Hobbes as an upholder of the theory of self-interest.

Finally in 1703 James Craigie places ethics as the most important part of moral philosophy.

The ethics teaching in all four Scottish universities, then, conforms to the pattern described at the beginning of the chapter - commentaries on Aristotle up to the 1660s and 1670s, with quotations from scholastics and English and Scottish Protestant theologians and writers on ethics. From the 1670s onwards Henry More's writings feature prominently in the ethics lectures and theses. This interest can be related to the date of accession of More's works in the various library lists.

At Edinburgh a copy of More's Mystery of godliness and philosophical discourse was purchased in 1661; this was followed by purchases of other works by More throughout the 1660s and 1670s - his Mystery of iniquity in 1664, Enchiridion ethicum in 1668, Anthroposophia and Anima magica abscondita in 1669, Divine dialogues concerning the attributes and providence of God in 1670, Enchiridion metaphysicum in 1672, the first three Divine dialogues in 1677 and his complete works in 1682. We have no records of when More's works were purchased at Glasgow, but the library list of 1691 lists More's complete works. King's College received a copy of More's Ethica in the Scougal bequest of 1684



and the library list of 1700 mentions copies of More's other works. The Enchiridion ethicum features in the Marischal College list of books purchased after 1673, and John Wedderburn left St. Leonard's College More's works in 1678.

The attitude of the regents to More is not always one of whole-hearted acceptance of his views. For instance, John Wishart (Edinburgh) quotes More's views on the passions with approval, but is less enthusiastic about his theory concerning "right reason." Andrew Massie (Edinburgh) cites More as an authority, but is dubious about his classification of the virtues, while Herbert Kennedy (Edinburgh) recommends More's Enchiridion to his students, but dislikes More's definition of ethics as the "art of living well and happily," since this tends to equate happiness with pleasure. William Law (Edinburgh) is also reluctant to adopt More's teaching. On the other hand George Middleton, Alexander Fraser and Henry Scougal (King's) and Thomas Gray and Alexander Moir (Marischal) are entirely pro-More, while John Hay (St. Leonard's) also recommends More's Enchiridion. It is probably no coincidence that More's teaching is most warmly received in the more Episcopal universities.

In the early commentaries on Aristotle the cardinal virtue which receives most attention is justice, and the regents spend a lot of time discussing whether it is right for Christians to wage war; this particular emphasis probably owes something to Grotius, but in any case it was a question which had a very immediate relevance to the political situation in 17th century Scotland, and thus provides further evidence of the regents' intention that the teaching of ethics should be practical.

Quite apart from its relevance to the numerous wars which beset Scotland during the century, this problem of whether Christians should fight would have been a very real one for mercenary officers, of which Scotland produced so many. Later in the century discussion about natural law occupies an increasingly larger proportion of the ethics lectures, and Scots writers on natural law are frequently mentioned, e.g. James Dalrymple, George Mackenzie and Adam Blackwood.

Grotius's works are quoted by the regents in their discussions of natural law, e.g. by Blair (Glasgow, 1674), by Wood (Edinburgh, 1674), by Paterson (Edinburgh, 1679) and by Burnet (Marischal, 1686). The library lists reflect this interest. Grotius's De iure belli et pacis was bought for Edinburgh in 1662, and his De principiis iuris naturalis in 1668. Controversial works about Grotius's teaching were also purchased. In 1671 we have a note of the acquisition of Laurentius de rebus naturalibus et divinis et sententia adversus Grotium. There is a statement for 1707 in Henderson's donation book to the effect that "Mr William Scott, Regent, in imitation of the great Grotius (who first gave the learned of his age to know and value the study of the laws of nature and nations), having published a plain and useful compend of that incomparable piece de iure belli et pacis with a large and clear comment to facilitate the same, and engage the youth to ply the several politicks more timely, presented the library with a copy." King's College received a copy of De iure belli et pacis and of De imperio magistratus in the Scougal bequest of 1684. There is no record of Grotius's works on natural law being in Marischal College library, although it



received several of Grotius's religious works in donation from Thomas Reid in 1624 and from Alexander Reid in 1633. De iure belli et pacis appears in the University library list drawn up by St. Andrews in 1687; in addition St. Salvator's College library probably had a copy of De iure belli et pacis in the 17th century, while Mungo Murray presented St. Leonard's with the same work and also Grotius's De imperio summarum potestatum, and John Wedderburn left St. Leonard's Grotius's De fato and De studiis recte instituendis in 1678. Not all the regents, however, shared this enthusiasm for Grotius, as Robert Baillie's uncomplimentary remarks about him show.<sup>1</sup> It is perhaps significant that De iure belli et pacis does not appear to have been purchased for Glasgow until the very end of the 17th century. Certainly Edinburgh's first criticism of the Glasgow course of the 1690s was that "it neglects the law of nature, though it be the great foundation of all ethics."

On the same subject, the works of Cumberland, and in the latest dictates and theses, those of Puffendorf, are also mentioned fairly frequently. Richard Cumberland (1631-1718) was a zealous Protestant, who was made a bishop by William III. His sole philosophical work, De legibus naturae (1672) was the first full-length philosophical refutation of Hobbes to be published. De legibus naturae takes as its point of departure Grotius's De iure belli et pacis and demonstrates that natural laws are founded "on the nature of things" as distinct from the commands of sovereign rulers. Edinburgh acquired De legibus naturae as early as 1673. In the Marischal College records it appears in the list of books purchased after 1673. John Wedderburn left a copy of it

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1. cf. supra p.2

to St.Leonard's in 1678. The other libraries acquired the work somewhat later: it is listed among Glasgow's purchases for 1691; it does not feature in the King's College list for 1700, but had been bought by the time the 1717 list was compiled.

It is worth noting that Cumberland's work is sometimes referred to by regents before it appears in the library lists for their universities - an indication that some regents, at any rate, showed a keen interest in keeping up with current philosophical works. It is mentioned favourably by Sanders (St.Leonard's) in 1674 and by Middleton (King's) in 1675. De legibus naturae continues to be mentioned in lecture notes of the 1680s and 1690s, though the regents do not always agree with the views expressed in it; for instance, in 1697 Alexander Scrimgeour of St.Salvator's rejects the statement made by both Cumberland and Puffendorf that the sense of obligation is rooted in a system of rewards and punishments.

Puffendorf's major work, De iure naturae et gentium, was published in 1672, and an abstract of this, entitled De officio hominis et civis appeared in 1673, but the reference in Scrimgeour's theses in 1697 is the first that we have to Puffendorf. Nor do the university libraries seem to have acquired any of Puffendorf's works particularly quickly. Edinburgh bought Puffendorf on religion in 1698, followed by his Introduction to history in 1700, his History of Sweden in 1701, Puffendorf of the law of nature englished in 1703, his Divine feudal law in 1704, and his Duty of man in 1705. Glasgow received Puffendorf's De officio hominis et civis from Holland in 1699, together with his Ius faeciale divinum; and the 1703 edition of Puffendorf's



Introduction to history is listed among the works acquired by the library after 1691. There is no record of any works by Puffendorf being in King's College library, but John Dunlop left his History of Sweden to Marischal College in 1714. Puffendorf's Divine feudal law was bought for St. Andrews early in the 18th century, and his Elementa iurisprudentiae was purchased sometime between 1687 and 1714. Once Puffendorf's ideas were included in the dictates, however, he seems to have been considered a figure of some importance. John Law (Glasgow) gives a compendium of Puffendorf's teaching in his ethics lectures of 1699, and Gerschom Carmichael also refers to Puffendorf.

Cartesianism is perhaps a less obvious factor in the ethics lectures and theses than in those on the other subjects in the curriculum. Nevertheless, Cartesian ideas gradually appear in the courses from the 1670s onwards, mainly in the sections dealing with the passions. It is interesting that in some cases Descartes's Treatise on the passions had been in the university libraries for a number of years before there is any reference to it in the courses. For instance, in Edinburgh a copy was purchased in 1656, but it is only with Wishart's lectures of the late 1670s that the Cartesian classification of the passions is adopted. Similarly, Descartes's works were purchased for Glasgow in 1655, but Cartesian ideas first appear in William Blair's lectures of 1674.

Descartes was still favoured in the mid-1690s, at any rate by St. Andrews, Aberdeen and Edinburgh, as their comments on Glasgow's course show, and indeed his work on the passions continued to be recommended to the end of the regenting period.

So far I have been discussing the Scottish ethics course as a whole, but the comments of St.Andrews, Aberdeen and Edinburgh just mentioned are evidence that the same course was not taught in all the universities. As usual, Glasgow was more conservative than the other universities; the lecture notes of her regents contain more in the way of scholastic debates, and the uniform course is criticised for mixing up theology with ethics, for concentrating on trivial scholastic-type questions rather than on important points such as natural law, and for favouring the schoolmen too much while not dealing with Cartesian arguments properly. Incidentally, Glasgow's method draws considerable criticism from the other universities - a further indication of the preoccupation with method which I mentioned in the chapter on logic as being characteristic of 17th century Scottish university teaching.

The courses at the other universities are similar to each other; where they differ is in their political bias. Aberdeen and St.Andrews both show Episcopalian sympathies throughout the 17th century in their lectures and theses. The statement put out by the masters of St.Andrews in 1687 claims that ethics lectures should teach "the Absolut and illimited power of the Supreme Magistrate and the universal obligation of subjects to obey, and never to resist his authority;" James Martin's theses of 1681 show that this was exactly what was being taught at St.Andrews.

If we compare the dictates and theses with the comments made about ethics in the various commission and university reports, we find that for the most part the recommendations made for



teaching ethics correspond to the regents' practice. At the beginning of the century the curricula list Aristotle's Ethics as part of the third year course, and this was still in force in the 1640s. The next such reference we have occurs in the statement by the masters of St. Andrews in 1687; their ideal ethics course was to be "purged from the scholastic and theologic disputes which are ordinary to be found in these tractates and reduced from common principles of natural reason, nature of humane society, the common passions, humours and inclination of mankind and what experience and observations afford for rectifying the errors of these, where must not be omitted to explain the nature of civil government." In fact most of the lectures around this date, apart perhaps from those delivered in Glasgow, do conform to the pattern advocated by the masters of St. Andrews.

The joint statement put out by the universities at the time of the proposed uniform course refers to works on ethics which were considered unsuitable. Among them are Derodon's Ethics, which "hardly deserve that name running only out de libero arbitrio." In fact I have found only one reference to Derodon in all the ethics lectures and theses, and that in the lectures of a regent at conservative Glasgow - William Blair (1666). Henry More's Ethics are also criticised for "being grossly Arminian particularly in his opinion de libero arbitrio." This is not entirely in line with what we find in the dictates and theses where, although some regents are reluctant to adopt everything in More's teaching, his Enchiridion is nevertheless frequently recommended as a standard work. However, this discrepancy can be explained by the political nature of this joint statement

which I hinted at in Chapter 2: while the regents, particularly those with Episcopalian sympathies, might use More in their lectures and recommend his work, they would not have been willing to abdicate their right to compose their own lectures in favour of his or any other course.

Finally, both Commissions and universities were agreed about the practical nature of ethics. In 1692 the Parliamentary Commissioners stated that time should not be spent in disputes on felicity, but rather on morals, especially concerning the governing of affections.<sup>1</sup> As we have seen, the ethics lectures contain far fewer references to scholastic disputes than lectures on other subjects; their bent is more practical, designed to help men to live a godly life on this earth and eventually to attain supreme happiness in the next world.

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1. EUL - Dc.1.4



## Chapter 6

Throughout the 17th century natural philosophy was taught as the final subject of the course at Scottish universities - possibly because it was considered the most difficult part of philosophy.

Viewed in relation to the wider intellectual developments of the 17th century, the natural philosophy dictates and theses are perhaps the most significant part of Scottish university teaching of that period. Through investigation of them we can see what impact the scientific revolution had in university circles, how soon and to what extent Cartesian gave way to Newtonian ideas, and how much notice was taken of experimental science, the practical application of science, and events such as the creation of the Royal Society.

Astronomy was usually integrated into the physics course, but I shall consider it separately from physics proper, since in this way it will be easier to trace the evolution of Copernican, Cartesian and Newtonian ideas about the nature of the universe.

### 1.

The natural philosophy dictates and theses up to the 1660s are largely Aristotelian. For most of this period the regents lectured on Aristotle's Acroamatic Physics, and on his books which dealt with physical subjects. The authorities cited, like those mentioned in the lectures on logic, metaphysics and ethics, are frequently recent scholastics, whose ideas derive from 16th century rather than from medieval Aristotelianism, e.g.

Zabarella, Burgersdijk, Scaliger, Toletus and the Coimbra commentators. These commentators were beginning to criticise Aristotelian physics, and probably the criticisms which appear in the dictates and theses derive from the scholastic textbooks. Certainly, they do not appear to have been made as a result of the regents' actually observing the phenomena and recording their discoveries. Science was still a matter of comparing the statements of different authorities and arriving at the truth by means of argument.

References to Cartesian physics first appear in the 1650s. To begin with Cartesian ideas were looked upon with distrust, largely because of the implications of mechanism. Thus Wishart rejects Descartes in 1671 because his theories limit God's power, while at St. Andrews in 1657 William Campbell accuses Descartes of paving the downward path to atheism and scepticism. Together with Descartes are grouped his followers Rohault, Clauberg and Legrand. The fear of atheism also explains the regents' dislike of Hobbes's physical theories and of Epicurean ideas as revived by Charleton. It is interesting that Cartesianism is sometimes seen as a revival of Epicureanism (e.g. by John Wishart in 1672).

When commentaries on Aristotle's works ceased, for the most part in the 1660s, the lectures were divided into two sections dealing with general and special physics. This division remained in force till the end of the regenting period and follows the organisation of scholastic textbooks on physics.

By the late 1670s and the 1680s Cartesian ideas had been accepted, and many of the lectures and theses are wholly Cartesian in their physics. As with the other subjects, the division was



not clear cut; Aristotelian physics continued to be taught alongside Cartesian (often in the same lectures), and the newer theories of Huygens and Newton appeared and were often accepted long before Cartesian physics had ceased to be taught. However, generally speaking, Cartesianism gave way to Newtonianism from the late 1680s onwards.

The Gregory family are well-known for their support of Newtonian ideas in Scotland. Whiston's Memoirs tell how he was "greatly excited to the study of Sir Isaac Newton's wonderful discoveries in his Principia by a paper of Dr. Gregory's when he was Professor in Scotland, wherein he had given the most prodigious commendations to that work, as not only right in all things, but in a manner the effect of a plainly divine genius, and had already caused several of his scholars to keep acts, as we call them upon several branches of the Newtonian Philosophy, while we at Cambridge, poor wretches, were ignominiously studying the fictitious hypotheses of the Cartesian."<sup>1</sup> The Gregory mentioned in Whiston's statement is usually considered to be David Gregory, who became professor of mathematics at Edinburgh in 1683. In fact, however, it is more likely to have been James Gregory, David's brother, who came to Edinburgh as professor of mathematics in 1692, having previously taught at St. Andrews. The uncle of David and James, another James Gregory, had preceded both of them as professor of mathematics at Edinburgh and, like his nephew James, he had first taught at St. Andrews.

However, the Gregorlys were by no means the only exponents of Newtonian ideas at the end of the 17th century.

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1. Quoted by Andrew Dalzell, History of the University of Edinburgh (Edinburgh, 1862), vol. 2, p. 342

Newton's theory of light and colour appears in the teaching of Wishart, Law, Kennedy, Scott, McMurdo, Cockburn and Erskine of Edinburgh, of Carmichael of Glasgow, of Buchan, Alexander Fraser, Urquhart, Peacock and Smith of Aberdeen, and of Martin, Scrimgeour and Craigie of St. Andrews. His theory of gravity is supported by Kennedy and Erskine of Edinburgh, by Urquhart, Peacock and Smith of Aberdeen, and by Scrimgeour and Craigie of St. Andrews; it is mentioned by Tenn of Glasgow, but rejected as being too difficult; Carmichael alone of the Glasgow regents supports it.

To begin with the regents tend either to prefer Descartes's theories or to be non-committal about the truth of Newton's ideas. In several cases an effort is made to synthesise Newtonian and Cartesian hypotheses, e.g. by Scott, McMurdo, Cockburn (Edinburgh) and Martin (St. Andrews). Before Newtonian ideas were completely accepted the regents sometimes favoured Huygens's theories about movement. Often Newton's ideas were not taken up because the regents considered their mathematics too difficult for the students, and one suspects that they were beyond some of the regents as well. It is an interesting sidelight on the regents' approach to science that their main criterion for accepting any given hypothesis does not appear to have been whether it was true or not, but whether it fitted into a given system, or in some cases whether it was suitable for pupils to learn; e.g. Moir (Marischal, 1691) leaves others to debate the truth of Newton's theory of movement, since it is opposed to the Cartesian principles he is putting forward in his theses.

However, by the beginning of the 18th century Newtonian ideas, not only on movement, gravity and light, but on all aspects



of physics, had been adopted unreservedly by most regents in Edinburgh, Aberdeen and St. Andrews.

It is interesting to note when copies of Newton's works first appear in the library lists. Newton's Principia were published in 1687, and as early as 1690 they appear in Edinburgh's library lists. Somewhat untypically, Glasgow seems to be the next university to have acquired a copy - in 1695. At King's College they were purchased sometime between 1700 and 1717, while their first appearance in the St. Andrews lists is in 1716. However, from the books mentioned in the Delvine papers we have evidence that Newtonian textbooks were being used in the philosophy course at St. Andrews in the earlier years of the 18th century. In 1708 there is a reference to Newton's Algebra, i.e. Newton's Cambridge lectures on algebra published by William Whiston in 1707 under the title Arithmetica universalis, sive de compositione et resolutione arithmetica liber. John Keill's Euclid is mentioned in 1712 and his Physics in 1713, and there is also a reference to Samuel Clarke's edition of Rohault's Physics.

Let us now turn to the actual dictates and theses.

For Edinburgh we possess more dictates on natural philosophy than on any of the other subjects. They go from 1613 to 1704. As in the case of logic, metaphysics and ethics, the lectures up to and beyond the middle of the century are commentaries on Aristotle, usually taking in his Acroamatic Physics, De coelo, De ortu et interitu, De meteoris and, as I mentioned in the chapter on metaphysics, his De anima. In these dictates Aristotelian ideas about such things as principia, efficient and final causes, movement, change, place, time, the void, the infinite

etc. are accepted without question. Authorities quoted include Oviedo, Franciscus Bonae Spei, Compton, LeRees, Hurtado, Arriaga, Pontius and Zabarella.

Thomas Craufurd's lectures of 1653<sup>1</sup> and 1661<sup>2</sup> show clearly what a strong hold Aristotle still had on scientific method. In them Craufurd states that knowledge of natural objects is to be gained from knowledge of principles, and that we should proceed from the universal to the particular.

However, Wishart's lecture notes, spanning the years 1660 to 1680, show that a transition was beginning to take place. The earliest lectures, delivered in 1660,<sup>3</sup> still summarise Aristotle's teaching in his works on physics, but reference is now made to Descartes and Cassendi, (only in passing, it is true, but at least it shows that their works were becoming known). Ten years elapse before the next set of Wishart's lectures on physics,<sup>4</sup> and within this time Wishart's horizons had widened considerably. Commentaries on Aristotle's Physics have been abandoned and, side by side with references to scholastics, modern trends in natural philosophy are discussed at considerable length. The first section is concerned with matter and form, and the views of the Jesuits, Peripatetics and Cartesians are described. Adrian Leeuwenhoeck is quoted on substantial form, and Wishart refers to Leeuwenhoeck's Physical Theses, published in Amsterdam in 1665. Maignan, Henry More, Duhamel, Cassendi and Ramus are all mentioned, and Robert Boyle is called the "outstanding English philosopher and theologian

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1. EUL - Dc.5.122

2. EUL - Dc.5.55

3. EUL - Dc.8.114

4. EUL - Gen.699D



of this century." Wishart outlines the Cartesian philosophy, describing Descartes's theories of local motion and extension, his definition of the elements, and his views on matter, form, the physical earth etc. However, Wishart is not prepared to go so far as to adopt this new philosophy, mainly on the grounds that Descartes's theories limit God's power; in Wishart's eyes Cartesian philosophy seems to be based on the same principles as Hobbes's, and is therefore to be rejected because of the dangers of mechanism. We have nevertheless come a long way from Craufurd's Aristotelianism; Wishart is prepared to admit that recent experiments challenge the idea that the existence of a vacuum is impossible; he quotes the Torricellian experiment with mercury in a tube, and the experiments with water pumps carried out at Magdeburg and by Robert Boyle. He is also willing to accept some of Descartes's ideas, even if he cannot give his assent to them all; for instance, he seems to agree with much of what Descartes says about movement. Gilbert's theories of magnetism are described, as are the Cartesian doctrines concerning the movement of projectiles.

Wishart's lectures of 1674<sup>1</sup> and 1679<sup>2</sup> expand these references. It is true that he still adheres to the Aristotelian definitions of matter and form, and follows the Aristotelian treatment of physics fairly closely, but there is more discussion of recent developments in science than in the 1671 lectures. Wishart quotes from Hobbes's De corpore, where Hobbes maintains that there is no vacuum, which statement, Wishart declares, has

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1. St.A - Ms.1949

2. EUL - Gen.568D; Gen.690D

been adequately contested by Boyle and Ward. Wishart also quotes Hobbes's Physical Dialogues and refers to a number of experiments mentioned there. Much more time is spent in these lectures showing the dangers inherent in Descartes's philosophy (i.e. its ability to be converted to atheistic ends by such as Hobbes). Equally, however, Wishart gives more space to his description of Descartes's physical theories, e.g. concerning movement, and the names of Rohault and Clauberg frequently appear alongside that of Descartes. Most significant perhaps is the account given by Wishart of Newton's theory of light; Wishart does not argue either for or against the theory, but the very fact of his mentioning it indicates that the regents were by no means as divorced from contemporary science as is sometimes suggested.<sup>1.</sup>

The year after Wishart's 1671 lectures, James Pillans gave lectures on physics as part of his exposition of Peripatetic philosophy.<sup>2.</sup> The subject matter is entirely Aristotelian, but at least the Aristotelian commentators most frequently quoted, Zabarella and Burgersdijk, are Renaissance rather than medieval Aristotelians. For information about the celestial and terrestrial globes, Pillans directs his students to Robert Line's Tractatus de globis coelesti et terrestri, published in 1593.

With Andrew Massie's lectures of 1682<sup>3.</sup> we have moved over completely to Cartesian physics. Massie entitles his lectures

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1. Newton's theory of light had only just been published at the time of Wishart's lectures; it appeared in three papers in the Philosophical Transactions for 1672, 1675 and 1676.

2. EUL - Dc.6.4-5

3. EUL - Dc.6.23; Dc.5.115



Institutiones physicae generalis secundum principia D. Renati

Descartes, and in his introductory remarks he speaks of Descartes in glowing terms. Descartes was the man who shook off the tyrannical yoke of Aristotle, and introduced a true method of studying philosophy; he brought light to the dark night created by the scholastics. Massie says that he cannot omit to mention the investigations of the Royal Society of England to whom much is owed; they do not go by any authority, but follow the school of nature, discover its laws, and inquire into the causes of things; they observe, and prove the truth of what they have observed by further experiments; once proofs have been established they are put to the use of mankind. However, to Descartes goes the supreme palm; he constructed a new system of nature and a hypothesis which is now acclaimed throughout Europe. In summarising Descartes's teaching Massie wants to root out all preconceived notions; anyone who follows Descartes will at length penetrate the inner secrets of nature and arrive at a knowledge of the truth.

Massie accepts Descartes's physics in their entirety. Even on difficult points, which are open to debate, Massie is prepared always to accept the Cartesian solution. For instance, he mentions the difficulty caused by the lack of a void in the Cartesian philosophy, but concludes that the theory of circular movement obviates this problem. Massie's lectures of 1690<sup>1</sup> continue to be strictly Cartesian; indeed they frequently repeat the earlier lectures verbatim. In the section on special physics we find mention of Harvey's theory of the circulation of the blood.

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1. EUL - Dc.7.92

Herbert Kennedy's allegiance (in 1686 and 1689)<sup>1</sup> is also to Descartes, but he is more critical than Massie. In the first part of physics (i.e. general physics, which is concerned with properties common to all bodies), Kennedy discusses the Peripatetic definitions of matter, form, movement etc., but thinks that they are beset with difficulties. He refers to Rohault's experiments concerning movement and gives Cartesian rules of motion, viz.

1. A thing keeps on moving until it is met by some obstacle,  
cf. the Aristotelians, who think that every moving thing is constantly striving to attain its natural state of rest.
2. Things moving in a circle are always trying to go off at a tangent in a straight line, etc.

Moving on to special physics (i.e. concerned with properties peculiar to particular types of body), Kennedy comments that two methods of scientific study have been employed by the present century. The first is used by those who study celestial bodies; they observe phenomena and then form hypotheses to fit their observations; the phenomena are observed again to see if the hypotheses work, and if any of the phenomena disagree with the hypotheses, the latter are rejected or amended. The second method is employed by those who study nearer objects which can be handled; the effects of the objects are observed and various experiments are carried out to investigate the effects and qualities of bodies.<sup>2</sup> Kennedy proposes in his lectures to cover the chief discoveries made by recent philosophers and makes

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1. EUL - Dk.3.31; NLS - Ms.2075

2. These two methods of scientific study are apparent in the two methods advocated by Newton in his Principia and Optics.



frequent mention of the works of Descartes, Clauberg and Rohault.

William Law's lectures of 1692<sup>1</sup> mention Newtonian ideas, as we shall see when we come to discuss astronomy, but as far as physics are concerned, the theories remain Cartesian. In 1699 Law provided his students with a Summary of physical questions whose solutions are to be found in Rohault's Physics, Philosophy old and new, and other treatises.<sup>2</sup> By 1701, however, Newtonian ideas had found their way into Law's physics lectures.<sup>3</sup> On the subject of whether or not a vacuum exists, Law quotes Descartes's theory, which was supported by Mersenne. Gassendi and most of the scholastics, however, hold a different view, Law tells us, which has been adopted by most recent philosophers, e.g. Huygens and Newton; it is the latter view that Law favours, pointing out that a lot of difficulties are removed once it is admitted that space does exist. A few pages later on in the notes we find a description of Newton's theory of gravity, and his explanation of the movement of projectiles. Law has by now rejected most of Descartes's ideas about movement (e.g. the idea that a greater body which is at rest cannot be moved by a smaller body, even though it is moving very quickly), though he holds to the belief that there cannot be any movement other than local motion. On the subject of light, Law favours the views of Huygens rather than those of Descartes, and refers to the experiments of Römer.<sup>4</sup> The Cartesian explanation of colour is also rejected, as lacking

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1. NLS - Adv.ms.22.7.3

2. NLS - Adv.ms.22.7.4

3. EUL - Dc.8.43

4. Huygens's Traité de la lumière (1690) opens with a chapter on Römer's discovery that light has a finite speed, contradicting a principal tenet of Descartes's natural philosophy.

proof; Newton's theory, on the other hand, (i.e. that colours are not modifications of light arising from its reflection or refraction, but are innate properties of light rays) would seem to be confirmed by experience; however, Newton is unable to explain the "mechanical affections" by reason of which rays of light differ from each other in colour, and Law appears to be unwilling to accept the Newtonian hypothesis completely; he states that he prefers to abide by the theory that colours are merely rays of light modified in different ways.

The latest set of physics lectures delivered by William Law is dated 1704,<sup>1</sup> and is entitled Annotations on the general physics of John Leclerc, in which the Newtonian theory of movement appears again. This time there seems to be no doubt about Law's acceptance of Newton's ideas; he states firmly that Newton has given us the chief laws of movement. Newton's theories concerning colour and gravity are also spoken of with virtually unqualified approval, and Law comments at the end of his lectures that Newton managed to construct a true world system.

Locke's name has not featured so far in the physics lectures, but we find it in the notes delivered by William Scott in 1698.<sup>2</sup> Reference is made to the theory that "mere space" is neither body nor spirit, which is upheld by "that exceptional clear thinker," Locke. Apart from this, however, Scott's lectures are Cartesian in the main, though sometimes he is content with an Aristotelian explanation and sometimes he looks forward to post-Cartesian theories. Mostly Scott tends to favour Aristotelian or

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1. EUL - Gen.71D

2. EUL - La.III.717



Cartesian explanations in his section on general physics, and Cartesian or later theories in his special physics. For instance, he considers the Peripatetic definition of bodily principia satisfactory, likewise their views on the divisibility of the continuum. In his special physics Scott is unhappy with the Cartesian theories of light and colour, and he states that Newton's theory of colour is now generally accepted; however, rather than accept Newton's hypothesis completely Scott advocates a synthesis between it and the Cartesian view; he points out that Newton's theory does not invalidate Descartes's general hypothesis. Other authors whose writings on colour are recommended are Robert Boyle and Pierre Sylvain Régis (Physiology, pt.2, bk.8). Like Kennedy, Scott outlines the two methods of investigation which are currently employed, depending on whether one is dealing with celestial or terrestrial phenomena.

Charles Erskine's lectures of 1703<sup>1</sup> also take the form of Annotations on John Leclerc's Physics. Erskine claims that certain things in this work are untrue, and he is also worried by the prospect of pupils arriving at this part of philosophy who are not yet versed in geometry and arithmetic - an indication of the growing awareness that mathematics was needed for a proper understanding of the new science. Among the authorities referred to by Erskine are Giovanni Alfonso Borelli, especially his works on gravity, and Wallis (Philosophical Transactions no.43).<sup>2</sup>

Erskine accepts the laws of motion as given by Leclerc, and

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1. EUL - Dc.7.98; NLS - Adv.ms.20.7.1

2. The reference is to the paper entitled A summary account of the general laws of motion, by John Wallis and Christopher Wren

points out that they are similar to those set up by Newton. He praises Newtonian laws of gravity and points out the shortcomings of the Cartesian explanation.

Returning to the beginning of the 17th century with the graduate theses, we find that, as in the dictates, Aristotelianism reigns virtually unchallenged. In 1601 James Knox upholds Aristotle's teaching in physics against its detractors; it is true that he rejects the Aristotelian belief that celestial is different from terrestrial matter, but he does so on the unscientific grounds that the Scriptures say that everything was formed from one formless mass. James Reid's Theses physicae of 1610 are typical in their subject matter. Reid defines materia, forma and privatio in Aristotelian terms; he also deals with time, movement (including the Aristotelian theory of how projectiles move), gravity, the continuum, nutrition, semen and anima. Nearly 20 years later, in Robert Rankin's theses of 1627, Aristotelian explanations are still accepted, though it is worth noting that Rankin rejects privatio as a principium. Rankin's 1631 theses are slightly more critical of Aristotelian tenets; they state that "Aristotle's doctrine concerning the principle of movement in a mixed body cannot be defended; it is contradictory to what Aristotle himself says, and utterly overthrows the whole doctrine of mixture, the speed of natural movement to its goal, and the concept of a natural resting place, as we understand these notions from the writings of the ancients."

By 1642 there is more discussion in the theses of the views of different commentators on Aristotle. Craufurd states that Avicenna is wrong in maintaining that the forms of elements



remain in a mixture as distinct forms. The views of Averroes and Zabarella about substantial forms are also rejected. An increasing number of Aristotelian concepts are questioned. Craufurd

says that there is no foundation for the belief that celestial is different from sublunar matter. We can perhaps even detect a glimmer of support for empiricism in Craufurd's declaration that we should not always have recourse to the explanation of first cause when we encounter problems in nature; the implication is that such an approach is opposed to the scientific spirit. However, bearing in mind the allegiance to Aristotelian methods in science seen in his dictates, we should be wary of reading too much modernism into Craufurd's statements.

It is with Wishart that mention of modern physical theories first appears. His actual physics tend to be traditional, even more traditional sometimes than the physics in some of the earlier theses; for instance he maintains that the forms of elements remain in a mixture. However, he upholds the existence of a vacuum. Suarez, Heereboord and Pembrus<sup>1</sup> are quoted and, most important of all, Descartes makes his first appearance in the Edinburgh Theses physicae. Wishart's 1668 theses contain further references to recent developments in physics, though still in a negative fashion. Wishart rejects Hobbes's statements that "first matter is a mere name," that "time, place and space are phantasm," and that "the only type of movement in our bodily

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1. i.e. William Pemble (1592?-1623), Puritan divine. His physical works are De formarum origine and De sensibus internis

organs is reflex;" he opposes Maignan's theories on matter and form, and on the continuum, and he objects to Cartesian machines. Aristotle alone is praised, together with his commentators, Duns Scotus, Buchanan<sup>1</sup> and Cheyne.<sup>2</sup> Among the problemata given by Wishart at the end of his 1668 theses are the questions "whether there is a vacuum" and "whether all extension is body." In his 1672 theses Wishart is more explicit in his declarations of allegiance to the old philosophy; he says that "Peripatetic physiology is the oldest, and therefore seems most consistent with the truth, at least as far as principia, matter, form, affections, movement, shape etc. are concerned." Cartesian physiology, on the other hand, is described as "dubious", a reassembly of Epicurean mechanism. Descartes denies the possibility of a vacuum, although we know from the experiments of Torricelli, Boyle and Otto van Guericke of Magdeburg that a vacuum does in fact exist. Not without reason does More say in his Enchiridion: "If Cartesian philosophy were to be accepted both in physics and metaphysics, I shudder to think what a precipitous and dangerous descent into atheism this would mean for mortal souls." Even more unenlightened than Descartes's physiology is that of Hobbes, admitting nothing which is not matter. Finally, Wishart refers to Joseph Hoxon, who "seems to cling to water when he wants the equinoctial to move by its own movement from west to east."

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1. Possibly George Buchanan (1506-1582), Scottish poet and author

2. James Cheyne, d.1602. Aberdeenshire philosopher and mathematician who taught philosophy at Paris. DNB lists a number of his commentaries on Aristotle and other philosophical works.



Cartesian physics are still rejected by Wishart in 1676. Again it is the mechanistic aspects of Cartesianism to which he objects: "it is a stumbling block in the Cartesian hypothesis that almighty God cannot destroy even the smallest bit of atomic matter;" Wishart thinks that there is much in physics whose causes mechanism has not yet explained. Descartes was woefully deceived in his theories about the laws of movement, and many points in Cartesian teaching are difficult for pupils to grasp. A surprising note is struck when Wishart states that "many believe that Newton has now shown that where Descartes seemed to be spreading light, he was in fact causing darkness." As with Craufurd, however, we must take Wishart's dictates into account as well as his theses, and this should warn us against reading too much into this remark about Newton.

Wishart never accepts Descartes's physical theories; his theses of 1680 are as anti-Cartesian as those of 1661. He seems puzzled that Descartes could have been so wrong in his physics; in 1680 he says: "when Descartes himself professed that he would admit nothing except what he perceived clearly and distinctly, how could he be so seriously mistaken about the rules of movement?" In the same theses Wishart also objects to the Cartesian theory about the continuum.

At the same time as Wishart was at least acknowledging the presence of new physical theories, Pillans remained a devoted Aristotelian, as conservative in his physics as in his logic and metaphysics. Pillans's 1669 theses refer constantly to the terminology used by the schools in their commentaries on Aristotle, and his 1677 and 1681 theses show no updating of

his ideas.

In his logic theses Wood appears as Pillans's fellow conservative, but his physics theses show a development from Aristotle towards a more empirical approach. The Theses physiologicae of 1670 open with a statement which suggests an Aristotelian and scholastic view of physics. "For those who study physiology," Wood says, "knowledge of final causes is not the end, but the beginning from which we set out to the first and highest goals, until we see God, the final cause of all things." However, in the same theses Wood refers to some 17th century philosophers, Kenelm Digby and George Sinclair, and quotes Bacon to the effect that "we should not make use of magic illusions, when the power of philosophy teaches us all we need to know."

By 1674 Wood seems to favour experimental philosophy; he says that "experimental philosophers grace physics much better than Aristotle." Privatio is rejected as a principium, and Wood states that the whole Peripatetic description of forms is very obscure. Indeed Wood has doubts about the entire business of principia; he says it is not surprising that van Helmont and Gassendi have substituted water, and Basso meteors as the first principle, though for his part, Wood does not agree with the idea that elements are principia. In his questions Wood invites his students to choose between principia - Cartesian, Epicurean and Aristotelian. Other questions indicate topics currently being debated in the university courses: "whether the continuum consists of mathematical, physical or inflated points," "whether all movement is from without," "whether there is a vacuum," "whether the sky is a quintessence and whether it is solid or



fluid," "whether there are elements and if so, whether there are four," "are colour and light the same?" "is sensation explained best by Aristotle, Epicurus or Descartes?" "is there any demonstration in physics?"

William Paterson gives an interesting survey of the contemporary state of philosophy, with particular reference to natural philosophy, in his theses of 1671: "The abundance of philosophers in this century has created a world devoid of philosophy, since their daily hypotheses cancel each previous one, just as wave rolls upon wave. Clauberg (with a great band of followers) professes the Cartesian philosophy; Gassendi and the noble Boyle are atomists; Thomas White and the metaphysical society of Jesuits are Peripatetics; learned Cambridge is Platonic, while Robert Fludd proposes a Mosaic hypothesis in his Caballistic vanity; all of them have explained some natural phenomena, but none of them have explained all. Whatever Descartes has explained by globules of three elements and fibrous, branching, cubic, conic, spherical etc. particles, Democritus, Epicurus and co. have also explained by atoms, effluvia, essential modifications etc. Aristotle explains the same things by substantial forms, qualities and accidents, Plato by seminal forms and a plastic soul, and the Caballists by light, shade, southern and northern winds etc." In his problemata he asks "which of the Peripatetic, Platonic, Epicurean-Gassendian-Charletonian, Cartesian, Digbeian, Chemical or Fluddian-Caballistic hypotheses explain natural phenomena satisfactorily?" He also refers in the problemata to various machines used in experiments to demonstrate the elasticity and pressure of air, i.e. the baroscope, barometer, hydrargyrometer,

Stubbs's diaceltatentaton and Boyle's pneumatic machine.

Paterson's 1675 theses give a similar survey of the state of natural philosophy, but this time there is more detail, especially about Cartesianism. "More have tried to explain the Cartesian hypothesis to students than have succeeded. Henricus Regius disgraced this Gallic philosophy most shamefully with his ideas about a material soul; Adrian Heereboord undertook the same subject in a drunken fashion, but he did not even touch on physical theories; Antony Legrand succeeded least well of anybody in clarifying Cartesian ideas; Rohault did much better and Clauberg best of all; the latter made Cartesian philosophy easy and intelligible to students." Paterson dislikes all the ancient definitions of principia, including that of the "Peripatetic Pope, Aristotle, who was formerly revered too much." The Cartesian theory of extension is accepted, and Boyle's experiments are spoken of with approval. Among the questions at the end are the following: "Are animals automata as Descartes believes?" "Is all body infinite?" "Could the world have been created from eternity?" "Is extension a property of body?"

The 1679 theses substantially repeat those of 1675.

Paterson's general position seems to be one of bemusement before such a multiplicity of theories. He realises that the Aristotelian philosophy is now discredited but, although tending to Cartesianism quite frequently, he sees the dangers inherent in taking over the philosophy of any school without criticism; one cannot help feeling that, while applauding this scientific approach, Paterson regrets the passing of the old certainties, and that it is with relief that he turns in his 1679 theses to the relatively unvexed



province of moral philosophy.

The 1680s saw a new batch of regents, and with them a complete transition to Cartesianism and Newtonianism.

Gilbert McMurdo in 1682 accepts the Cartesian theory that extension is an essential quality of substance; he expounds the Cartesian idea of the three elements, and his definition of movement is also that of Descartes. He accepts Newton's theory of light, but does not see this as a departure from Cartesianism; instead he claims that "this doctrine can easily be fitted into the Cartesian hypothesis, if we take the globules of the second element as being unequal, some having stronger impressions than others, and consequently able to be refracted in different ways and to produce sensations of different colours."

As in his dictates, Massie is a Cartesian. In his 1683 theses he states that Descartes gave us a far more exalted physiology in this present century than was known to our predecessors. Descartes did not actually discover the hypotheses he puts forward; he merely reworked the theories of Democritus and Epicurus. Massie cannot vouch for the truth of Cartesian physical theories, but they agree with the phenomena and provide convincing explanations. However, Massie does qualify slightly his enthusiasm for Descartes: "this zeal for deducing individual facts from the unchanging laws of matter and movement took such a grip on Descartes's fertile intellect, that he not infrequently imagined that a thing was indeed so if he desired it to be so." He is prepared to admit other explanations; for instance, on the subject of tides he refers to the Cartesian theory that tides are caused by the pressure of the moon on the atmosphere; however,

others with no less likelihood attribute them to the movement of the earth (e.g. Galileo and Wallis).

Massie's 1687 theses show the same qualified approval of Descartes. He distrusts the mechanistic basis of Descartes's theory of movement, and his ideas about extension. At the same time he is increasingly enthusiastic about experimental philosophy, and in particular Robert Boyle, "that great ornament of the Royal Society." The scholastics are contrasted with experimental philosophers: "The scholastics are content with a general knowledge of principia, with the result that they do not come down to the immediate causes of things; consequently they can only show to the world a distant and abstract knowledge of the composition of natural objects."

On the subject of biology, Massie refers to Leeuwenhoeck's experiments, and acknowledges our debt to the microscope, especially to the light it throws on the process of generation. He states that animals owe a great deal to Ignace Pardies, Matthew Paris and Thomas Wallis who have now at length restored perception to them, for a long time denied them by Descartes. Other authorities referred to are van Helmont, Charleton and Francis Glisson (his De vita naturae).

Alexander Cockburn is also a Cartesian; he has fewer reservations than Massie. He states that there are no grounds for objecting to the mechanism of Descartes, Gassendi and Maignan, "since their method has yielded abundant fruits, as becomes clearer every day." Indeed Bayle has shown that Aristotle himself did not shrink so completely from mechanical philosophy as metaphysical triflers imagine. Cockburn accepts the definition



of movement given by Descartes and Rohault; the experiments of Boyle, Cassendi and Huygens on movement are all mentioned, as are Wallis's experiments with a baroscope. Like McMurdo, Cockburn accommodates Newtonian theories on light to Cartesian. He gives the Cartesian theory of sound, and lumps together the ingenious hypotheses about tides, the movement of comets, the variation of the magnetic needle which have been propounded by Descartes, Wallis, Cassini and others. Finally, Cockburn refers to those who have unravelled nature's mysteries, outstanding among whom is the Scot, Robert Sibbald.

There are further references to modern developments in philosophy in Cockburn's 1688 theses. Mention is made of Leeuwenhoeck's experiments with animals and investigations into the origin of life. Torricelli is praised for having put to flight the pronouncements of the Peripatetics on air. Newton's and Perrault's explanations of gravity are referred to; Cockburn thinks that Perrault's would have been the best explanation, if Newton had not demonstrated that it is incompatible with Kepler's third law.

Descartes is prominent in the theses of Robert Lidderdale (1685). He states that Descartes enriched natural philosophy with numerous useful experiments, and contributed enormously to the study of mathematics. The principia are posited as materia and forma, and the nature of matter is defined as consisting solely in extension; from this follow several corollaries, e.g. that there can be no space distinct from extension and that there can be no vacuum. Local motion is the only kind of movement. Finally, Lidderdale discusses the origin of streams, disagreeing with Plot, who claims that "streams arise from the passage of the sea through subterranean channels;" he prefers the theory put

forward in an anonymous French treatise, which claims that rain water accounts for streams.<sup>1</sup>

Kennedy does not dwell on physics as much as some of the other regents do, but the statements he makes in his theses show that he favoured Cartesian physics in 1686 and 1690 (though he sets out Newton's three laws of movement in 1690), but by 1694 he had been converted to Newtonian ideas, which he speaks of in glowing terms. Leibniz is criticised for his attack on Newton, who opened the heavens to us and gave us an excellent explanation of gravity. The first property of body according to Kennedy is the power of resistance. Descartes's theory of movement is rejected, and in its place Kennedy proposes the explanation given by David Gregory, viz. "that the resistance of a medium whose parts are stirred up by internal movement is greater than that of a medium whose parts are at rest." Kennedy ends by giving a scientific account of an earthquake which took place in Europe in 1692 - evidence that science was no longer considered as an abstract study, but rather as something which could be applied to things that were happening in the world around.

Alexander Cunningham's physics theses of 1692 are not quite so advanced as Kennedy's 1694 ones. No mention is made of Newton; the authorities referred to are Régis and Huygens on movement. Cunningham recognizes two properties of natural body - matter and form; the primary attribute of matter is extension, and the primary modes of matter are movement, rest and shape.

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1. The work referred to is possibly De l'origine des fontaines, by Pierre Perrault, published in 1674



The two 18th century theses we possess for Edinburgh are both pro-newtonian. Charles Erskine states in 1704: "Wise Newton is an example of how indebted the human race can be to one man, and what great achievements are possible for mortals seeking the truth; with his principles of gravity alone he unravelled numerous and weighty mysteries of nature." He sets out the Newtonian theory of gravity which has superseded the Cartesian; the latter is opposed to the laws of gravity, and in addition is exceedingly obscure, not to speak of the other difficulties under which it labours. Huygens tried to clarify Descartes's theory of gravity, and to square it with the phenomena, but was hampered by the basic inconsistencies of his material. Newton's Optics are also discussed and Erskine concludes by claiming that God must exist to motivate the mechanism of the universe, again an idea supported by Newton, and one which would appeal to the Scottish regents who had always been troubled by any theory which detracted from God's omnipotence.

William Law begins his theses in 1705 with a similar statement to the effect that the wonder of the natural world postulates a first mover. He goes on to refer to Flamsteed's calculation of annual stellar parallax, which Gregory has subsequently shown to be inaccurate. Law's next statement is that some recent philosophers (e.g. Huygens) have claimed that there are inhabitants on other planets; however, the moon at any rate is hostile to life, since it lacks rivers and seas. Newton's theories about the nature of comets and the sun are referred to favourably, and the content of his Optics is described.

Glasgow's conservatism, already seen in varying degrees

in the other subjects of the arts curriculum, is nowhere more evident than in the lectures on physics.

The earliest dictates on physics that we possess are those taken down from the lectures of Hugh Walker and John Young in 1656.<sup>1</sup> They are entirely Aristotelian and contain no reference to recent experiments or to recent writings on physics. William Blair's notes of 1665<sup>2</sup> are incomplete and begin with the 4th disputation: de loco. Various theories are put forward, e.g. those held by Aristotle, Epicurus (followed more recently by Scaliger, Toletus, Masius, Cassendi and Charleton), Lessius, Descartes, Compton, Hurtado and Mendoza. The definition finally favoured by Blair is that space is "nothing but the given capacity of the body to be placed in it." On the question of the vacuum, Blair describes various experiments, including the Torricellian tubes, and some carried out by Hobbes. The student is referred to Henricus Regius's Fundamenta physicae. The opinions of Cassendi and Charleton on time are discussed, but without much enthusiasm. Blair also quotes their views on the continuum, together with those of White,<sup>3</sup> LeRees,<sup>4</sup> Basso,<sup>5</sup> Bérigard<sup>6</sup> and Maignan.<sup>7</sup> Finally, Blair refers to the Cartesian theory of light, which he rejects.

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1. St.A - Ms.36230

2. GUL - Ms.Gen.379

3. Thomas white (1593-1676), English recusant, who taught philosophy at Douai; upholder of Peripatetic philosophy

4. cf. supra p.64

5. Sebastian Basso (fl. second half 16th century), reviver of atomism

6. Claude Guillermet de Bérigard (1578?-1663/4), teacher at Padua; was abreast of the intellectual movement of his time and well disposed toward change, but scholasticism still tended to dominate his thought.

7. cf. infra p.268



George Sinclair's lectures of 1660-61<sup>1</sup> are also commentaries on Aristotle, but Sinclair is frequently in disagreement with Peripatetic physics; for instance he rejects the Peripatetic explanation of gravity; he does not think that gravity is an innate property of objects, but rather that it is a type of magnetism. In explaining the proportion and ratio in which velocity increases, Sinclair refers to Galileo. He is unhappy with the Peripatetic theory about the movement of projectiles, but does not provide an alternative theory for his students. Finally, he concludes, contrary to Aristotle, that a vacuum does exist.

By 1676 the regents had ceased to comment on Aristotle. In that year the regent proposes to summarise the opinions of Aristotle, the Epicureans and Descartes.<sup>2</sup> He lists the physical works written by Aristotle and mentions his most important commentators, Aquinas, the Coimbra commentators, Toletus, Ruvijs, Oviedo, Compton, Arriaga and Franciscus Bonae Spei. Epicurus is followed by Charleton and many more recent philosophers. A history of Descartes's career is given and a description of how he arrived at his method. The works of Descartes mentioned by the regent, apart from his Method and Meditations, are his Dioptrics, Meteorology, Geometry, 4 books of Physics and Passions. Other names appearing in the introductory section are those of Heereboord, Boyle, Clauberg, Listorpius and Legrand.

Section 1 deals with principia. The views of Aristotle, Empedocles, Democritus, Descartes and Kenelm Digby are set out.

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1. NLS - Ms.9382

2. NLS - Ms.2742

Descartes's theories, shared by Clauberg and Duhamel, are criticised on various counts: (1) he wrongly declares that a vacuum is impossible; (2) it is doubtful whether the essence of matter consists in extension; (3) he is wrong about the existence of several worlds; (4) matter is not divided into infinite parts.

The regent concludes that there are two principia: matter and form. For the most part the preferred view is the Aristotelian, though the regent does accept the existence of a vacuum, basing his arguments on the experiments of Maignan, Charleton and Torricelli; also, the Cartesian explanation of movement is considered preferable to the Peripatetic. Boyle's Tractatus de origine formarum et qualitatum is recommended in this section.

The second section is based on Aristotle's De coelo and De elementis and the third on Aristotle's books on generation and corruption. Under the latter heading the regent gives the Cartesian and Copernican views on gravity, but while he is dissatisfied with the Peripatetic explanation, he is unwilling to commit himself to any other view.

In 1681 John Tran<sup>1</sup> follows the same pattern in his lectures as the regent of 1676, comparing the physical theories of the Peripatetics, Epicureans and Cartesians in order to arrive at the truth. Like him too, he discusses different theories of principia, pronouncing in favour of matter and form. On movement, however, Tran prefers the Epicurean definition (i.e. migration from one place to another); the Aristotelian definition is unsatisfactory because it observes rather than explains, while

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1. GUL - Ms.Mu.227



the Cartesian explanation does not cover all possible movement. The views on projectiles of Digby, Camerarius and Aristotle himself are accepted, but it is Descartes's theory of attraction, set out in a letter to Mersenne, that prevails. Despite Tran's dislike of the Cartesian explanation of movement, the rules of movement that he gives are Cartesian. On the subject of the vacuum, Tran quotes the experiment with Torricellian tubes and the observations of Rohault; he believes in the existence of a vacuum. Rohault's experiments on light are also quoted with approval. The Cartesian explanation of tides is described, but Tran prefers Kircher's hypothesis.

Tran's lectures are not committed to any one set of physical theories; he chooses whichever hypothesis he thinks the truest, but his criteria for deciding which to take are not always clear. He would appear to be following the tradition of the earlier dictates rather than any objective criteria.

The dictates of 1687<sup>1</sup> and 1695<sup>2</sup> repeat those of 1681, except that in the 1695 lectures Tran lists outstanding names in the field of natural philosophy, among which are those of Bacon, Kircher, Boyle and many other members of the Royal Society. Digby, Maignan and Rohault are also mentioned.

John Boyd's lectures of 1693<sup>3</sup> are similar to Tran's.

The lecture notes taken down by William Bowie in 1699,<sup>4</sup> which were probably delivered by Tran, are of particular interest for their introduction, in which general principles to be followed in studying physics are set out. First of all a method of

1. GUL - Ms.Gen.34

2. GUL - Ms.Mu.213; Ms.Gen.417

3. GUL - Ms.Gen.465

4. GUL - Ms.Gen.69, cf. supra p.130

learning and teaching physics is proposed, comprising definitions, experiments, hypotheses and axioms. Tran points out that experiments are being carried out in increasing quantity, and then lists the main physical systems which have been taught in the past, i.e. the Platonic, Peripatetic, Chemical, Epicurean and Cartesian. Of recent philosophers some have followed Descartes and others Epicurus; most praiseworthy are those who do not slavishly follow either, but take the best from all systems. Boyle, Newton and Locke (in his Quaestiones physicae) are referred to with approval; all three follow this undogmatic method.

The pursuit of physics is helped (1) by knowledge of experiments, (2) by a natural curiosity in investigating the causes of various phenomena, (3) by some knowledge of mathematics. Physical studies are hindered (1) by disregard of experiments, (2) by haste in jumping to conclusions, (3) by too much confidence in our intuition, which causes us to take short cuts, (4) by excessive reliance on the senses. Tran then sets out certain axioms which are basic to physics: (1) Every effect has a cause; (2) Nothing can be created from nothing, nor can it return to nothing; this is false in theology, but true in physics; (3) Every effect is to be looked for in its cause; (4) Every body strives to remain in its present state; (5) All change, therefore, must have an extrinsic cause; (6) No body can move itself; (7) No body can move another unless it is itself in motion; (8) All bodies move in proportion to the power that is in them. These axioms, with their Peripatetic overtones, suggest that Tran was by no means as advanced in his thinking as his introductory remarks might seem to imply.



Tran mentions Newton quite frequently in the course of his lectures, though he omits his theory of gravity (1) because it demands a considerable knowledge of geometry and (2) because Rohault has dealt with it among his posthumous works. In his special physics Tran states that we should accept the Mosaic cosmogony, though Burnet (a Cartesian) and Whiston (a Newtonian) think otherwise; however, their theories have been adequately refuted. The Cartesian explanation of colour is accepted, and Rohault's and Leclerc's experiments are frequently referred to when Tran is dealing with the elements.

Glasgow regents were never converted to Newtonian ideas in the same way as Edinburgh regents. A strange mixture of theology and science is seen in their physics lectures, e.g. in the sections on imaginary space. The strictures on the Glasgow moral philosophy course made by the other universities (i.e. that it contained too many religious arguments) might well be applied to their physics courses also.

Turning to the theses, we find John Boyd stating in 1693 that the essence of matter does not consist in extension alone (as the Cartesians believe), nor in impenetrability (as the Peripatetics believe), nor in sensibility (as the Epicureans believe), but in impenetrable and sensible extension. The Cartesian theory of projectile movement is rejected, as are both the Aristotelian and Epicurean explanations of the movement of heavy and light bodies. Boyd still accepts the theory of the four elements, while at the same time recognizing the contribution of mathematics to advances in the arts and sciences.

Equally anti-Cartesian are John Law's theses of 1698.

Law lists some of the questions currently being debated in physics, e.g. concerning the nature of magnetism, gravity and light. He believes that we must rest content with the explanation that such things happen because God so ordained it, and he deplores the attempts of Descartes and others to explain them by mechanical laws.

Gerschom Carmichael has very little to say about physics in his 1699 theses. However, in his 1707 theses he upholds Newtonian science, mentioning in particular Newton's laws of gravity, his theory of light and his ideas about the composition of matter. The following year John Loudon mentions Boyle's and Torricelli's experiments on air pressure briefly in his theses.

The physics lectures that we have for King's College cover the years from 1662 to 1702. The earliest lectures are commentaries on Aristotle and accept Aristotelian explanations of such phenomena as the movement of projectiles. Aristotelian too is their refusal to accept the existence of a vacuum. The first non-Aristotelian lectures we have are those delivered by George Fraser in 1687.<sup>1</sup> In his section on sublunar bodies he deals with the four elements, with fossils, meteors and living things, i.e. plants and animals. The accounts he gives of these phenomena are virtually entirely Cartesian.

By contrast the lectures of James Gilchrist, delivered in 1689, are anti-Cartesian.<sup>2</sup> He rejects Descartes's belief that the substance of matter consists in extension, preferring the Peripatetic view that all bodies consist of matter and form.

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1. AUL - K.151

2. AUL - K.156



Also rejected is the Cartesian definition of movement. In the section on special physics, Descartes's theories are frequently discussed, but usually Gilchrist disagrees with them.

The general physics of 1702<sup>1</sup> are not attributed to any one regent and here too, as in the case of the other subjects, a standard course was probably being taught, though not that produced by Marischal College for the 1695 Commission, as we shall see. The lectures begin by outlining the Cartesian method and defending it against its detractors. The principia are then established as matter and form, and the Cartesian definition of the essence of matter consisting in extension is accepted. Descartes is also followed in the division of matter into three elements. On the question of form, the Peripatetic theories are dismissed, and the student is referred to Robert Boyle's treatises On the origin of forms and qualities. Cartesian explanations of movement receive a qualified acceptance; the following definition is preferred to that given by Descartes as being shorter: "Movement is the successive application of a body to different parts of bodies immediately adjoining it." For the movement of projectiles reference is made to Deschales's Pyrotechnia, and the Cartesian explanation of gravity is accepted as being the most consistent with the laws of mechanics. Moving on to the external principles of bodies, various types of cause are described - material, formal, final, exemplar and efficient. Under the heading On the properties of natural body the lectures deal with place, for which the Cartesian definition is adopted and, after reference to

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Boyle's air-pump experiments and his hydrostatics, the Cartesian theory about the impossibility of a vacuum is also accepted. Under the section on light there is a description of the Newtonian theory of light and colours; this is in different handwriting, and fills a complete gathering, so may have been inserted later. At any rate, no view is offered as to whether the Newtonian or the Cartesian theory is nearer the truth. The notes say that while Descartes's theory is clever and consistent with reason, it is contradicted by many things in Newton's theory; however, the decision as to which is the most probable is left to the student.

There are three sets of physics lectures for Marischal College. The first was delivered by George Peacock in 1688<sup>1</sup>. and deals with special physics. Peacock begins with a section De Deo, in which he proposes to use against atheists and sceptics the method advocated by Descartes to prove God's existence; he then sets out the doctrine of universal doubt. The next section is entitled De mundo, and in it Peacock discusses questions such as whether there is one or several worlds, whether the world is animated, whether it had a beginning, whether it will last for ever, at what season in the year it was created. After dealing with various world systems, Peacock discusses earth, water, air and fire. For further information about magnetism (in the section on earth) Peacock refers the student to Gilbert, Retcher, Cassendi and Descartes. Under the heading de aqua he describes various experiments, e.g. the Torricellian tubes, and discusses rarefaction, condensation and the action of tides. Finally,

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1. AUL - M.182



Peacock deals with plants, animals and man; in this last section he verges on the metaphysical in his discussion of the soul.

The general physics being taught at Marischal College at this time is exemplified in a set of lecture notes dated 1691.<sup>1</sup> After discussion of various scholastic theories about first principles, the Cartesian is accepted and taken as a starting point. Also Cartesian are the explanations of movement, the continuum and place. Reference is made to experiments carried out at Magdeburg, and to Boyle's and Torricelli's experiments, and scorn is poured on the views of Scotus, the Coimbra commentators and some more recent philosophers such as Kenelm Digby. The lectures of 1693, which purport to be given by William Seton,<sup>2</sup> repeat those of 1691, and point yet again to the existence of a standard course at Aberdeen.

With one or two exceptions, then, the later Aberdeen lectures are more or less consistently Cartesian, with little in the way of reference to Newton or other philosophers subsequent to Descartes. This allegiance comes out in the two physics courses produced by Aberdeen in response to the 1695 Commission.

Marischal College's general physics is divided into two parts, of which one contains introductory matter and the principia of natural body, and the other deals with movement, rest, continuity, divisibility and other properties of body. The course is planned as follows:

#### Part 1

Chapter 1: Definition of physics and description of its scope

Chapter 2: Outline of Descartes's method and rebuttal of objections

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1. AUL - M.183

2. AUL - M.180

to it.

Chapter 3: Principia according to various philosophers. Materia and forma accepted as principia.

Chapter 4: On first matter. The essence of matter consists in extension.

Chapter 5: On form.

## Part 2

Chapter 1: On movement and rest. Three definitions of movement are discussed, i.e. the Aristotelian, Epicurean and Cartesian, and their difficulties are outlined. Rohault's definition is accepted, and the hypotheses of Descartes and Permault about the nature of gravity are approved.

Chapter 2: On union, i.e. between (a) spiritual substances; (b) bodily and spiritual substances; (c) different parts of matter.

Chapter 3: On the continuum. Again the Cartesian hypothesis is that adopted.

Chapter 4: On the infinite.

Chapter 5: On time.

Chapter 6: On place and vacuum. Various experiments are quoted, which would seem to prove that there is a vacuum, but it is concluded that a vacuum is impossible.

Chapter 7: On nature and art.

Chapter 8: On qualities, i.e. senses. Newton's theory of light is set out in this section.

The second part was also to include a section on anatomy.<sup>1.</sup>

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1. This outline is taken from a memorandum on the course of general physics - AUL - K.219 (Box A)



We have records of only two observations made on Marischal College's general physics, i.e. (1) that the author spent too much time in refuting the Peripatetic maxim "there is nothing in the intellect which was not in the senses previously" which was thought inappropriate, and had already been dealt with in logic or metaphysics. (2) Moreover, in his account of fluidity, the author did not so much as mention that ingenious account given by Borelli. It is not certain which university made these comments - possibly Glasgow.

The special physics course was written by William Black, regent at King's College.<sup>1</sup> Black begins with a discussion of the different world systems, which I shall describe in the next section, and then proceeds to divide special physics into two sections, corresponding to terrestrial and celestial matter.

The chapter headings are as follows:

#### Part 1

Chapter 1: On different terrestrial substances, their natures and properties.

Chapter 2: On salt.

Chapter 3: On oily minerals.

Chapter 4: On stones and jewels.

Chapter 5: On the magnet.

Chapter 6: On metals and minerals.

Chapter 7: On water.

Chapter 8: On the origin of springs and rivers.

Chapter 9: On mineral waters.

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1. EUL - Dc.1.32

Chapter 10: On lakes and springs.

Chapter 11: On the sea.

Chapter 12: Explanation of the chief principles of hydrostatics.

Chapter 13: On fire.

Chapter 14: On air.

Chapter 15: On meteors.

Chapter 16: On plants.

Chapter 17: On the seed of animals.

Chapter 18: On the birth of insects.

Chapter 19: On the formation of the chicken in the egg, and the  
foetus in the uterus.

Chapter 20: On the nutrition of living creatures.

Chapter 21: On respiration.

Chapter 22: On the movement of the heart and arteries.

Chapter 23: On the movement and circulation of the blood.

Chapter 24: On the movement of animals.

Chapter 25: On the animal senses.

## Part 2

Chapter 1: On the sky in general.

Chapter 2: Description of the phenomena which are common to all  
planets.

Chapter 3: On the sun.

Chapter 4: On Mercury and Venus.

Chapter 5: On the earth and moon.

Chapter 6: On eclipses, parallax, refraction and other properties  
of stars.

Chapter 7: On Mars, Jupiter and Saturn.

Chapter 8: On the fixed stars.



Black's account of the origin of the world in his introductory section relies on the Mosaic tradition. He cites as his authorities Burnet (New Archaeology), Cudworth (Intellectual system of the world), Stillingfleet (Sacred origins) and Grotius (On the truth of the Christian religion.)

When he gets to the section on terrestrial substances, Black frequently refers to the experiments of contemporary scientists, e.g. Boyle, Wren, Hooke and other members of the Royal Society (the Philosophical Transactions are cited several times), also Sturm and Kircher, and he actually describes a number of experiments which can be carried out to prove various statements, e.g. in the sections on the magnet and on hydrostatics.

There is no mention of Newton in the first part, e.g. the recommended works on light are those of Descartes, Rohault and Deschales; in the second part Black refers to Newton's theories about planetary movement, but he sees no reason to reject the Cartesian vortex theory.

Black's course includes far more in the way of biology than most of the contemporary physics courses. Again he cites some of the latest discoveries, referring to Leeuwenhoeck's observations of animal seed, and to the findings of Reid, Swammerdam, Hooke, Malpighi and Kircher. He prefers Harvey's to Descartes's account of the circulation of the blood, and cites Harvey, Perrault, Borelli and other recent anatomists on the structure of the heart.

Aberdeen's contribution of special physics to the uniform course was criticised at great length by St. Andrews. The main objections are as follows:

1. Black does not show a truly scientific spirit in his approach.
2. He strays beyond the bounds of philosophy into theology.
3. He poaches on medicine's preserves in giving a table of the healing properties of plants.
4. He neglects optics, dioptrics and catoptrics.
5. He is disrespectful to philosophers whose opinions differ from his, in particular Newton, whose findings Black rejects on insufficient grounds.

Other points concern errors in individual parts of the treatise.

Some develop the second point above, i.e. Black's tendency to treat physics in a manner more suited to theology. Some are concerned with Black's explanations of certain phenomena by mechanistic laws with their attendant implications of atheism.

In some Black is accused of inconsistency (e.g. it is claimed that at one point Black says that all idea of space is finite, while at another he defines space as being something than which nothing greater can be imagined.) Expanding on point 5 above, the St.Andrews masters state that in his explanation of the ebbing and flowing of tides Black claims to have examined all the hypotheses which are worthy of note, yet he passes over Newton's hypothesis in silence (the hypotheses concerning tides which Black considers are in fact those of Descartes, Galileo and Wallis). Black is also criticised for rejecting Newton's theories, proved by observation, on the Cartesian vortices.

There are two replies to St.Andrews' criticisms - one from Aberdeen and one from a meeting of all the university delegates.

Aberdeen begins by pointing out that in the vast field covered by special physics there is bound to be a certain amount



of error. St.Andrews' animadversions are thought to be vindictive and unnecessary; what is more, the Aberdeen masters think it unpardonable that not only the work should be attacked, but its author too. The charge that Black strays into the realms of theology and medicine is rejected. As for the omission of optics etc., it was agreed that they should be dealt with by Marischal College in their course on general physics. Black does not detract from those whose views are contrary to his own and he considers himself justified in sometimes disagreeing with Newton, since he does not always deem Newton's theories to be well-founded. For instance, in the section on the ebbing and flowing of tides, Black does not promise to discuss all the hypotheses which are worthy of note (as his critics imagine), but two only, viz. those of Descartes and Galileo; (he also mentions that of Wallis, as noted above). He passes over the Newtonian theory because it is too difficult for the students at whom the course is aimed. After dealing with all 35 of St.Andrews' criticisms, the masters of Aberdeen conclude by stating that it is obvious that St.Andrews have not followed the rules they laid down in their own course of logic, viz. "that we should take care not to make it our first aim to criticise others or falsify their opinions, for nothing is more absurd than to try to persuade another of the truth before we ourselves have grasped it."<sup>1</sup>

The delegates of all the universities shared Aberdeen's opinion that the personal attacks on Black were unwarranted. They

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1. This statement does not appear in An introduction to logicks, thus providing further grounds for the belief that this work was not in fact St.Andrews' contribution to the proposed uniform course.

disagreed that a table of the healing properties of plants was out of place in a treatise on special physics. Some of St. Andrews' criticisms were accepted and referred to Black for alteration, which in several cases Black refused to undertake. On some points the delegates were split, e.g. on the question of the tides. I quote from the remarks:

"One part of the delegates are of opinion that Newton's hypothesis of the ebbing and flowing of the sea should be inserted or a reason given why it is not; and the other part think there is no need to make any mention of it. And the author gives this reason why he has omitted it, because neither he nor any he has conversed with on that subject do so fully understand what Newton doth write thereon, as they can make it intelligible to the young students for whose sake this tractate is chiefly designed."

Indeed, it is Newtonian ideas that most frequently cause a division of opinion among the delegates; for instance, on various points relating to the vortex theory and to comets there are supporters of Newton on the one hand and of Descartes on the other.

The final pronouncement of the Commission was that an account of the various world systems should be included in special physics. Dr Rule and another member of the Commission were recommended to score out the sections on pyrotechnics and on the seed of animals. The absurd opinion de anima mundi should be either refuted or scored out, and the argument for the beginning and end of the world should also be left out. Once the system of special physics had been thus amended, it was to be taught throughout the colleges in the coming year.



The theses enable us to date more precisely the point at which Cartesian and Newtonian ideas entered the physics teaching at Aberdeen.

The earliest theses are entirely Aristotelian. In 1622 Alexander Lunan poses such questions as "Whether matter is pure potential/power?" and in 1623 William Forbes's questions are not only Aristotelian (e.g. "Is single matter specific or numerical in its unity?"), but at times somewhat unscientific by modern standards (e.g. "Does a woman who has changed into a man become a monster?"). John Lundie (1626) mentions Benedictus Pererius's attack on the ancient views about vacuum, but upholds the older views. Lundie's 1627 theses show how much metaphysics overlapped into physics; his section de loco et locato is very metaphysical, discussing questions relating to God and the angels.

The authorities quoted are scholastic writers. William Lesley in 1625 refers to Averroes, Aquinas, Zabarella and Durandus, while John Lundie upholds the views of Aquinas against Averroes and Zabarella, and also cites Scaliger with approval. Andrew Strachan (King's, 1631) quotes Zabarella and Pererius, both of whom he views favourably; indeed he calls Pererius one of the most serious philosophers that our century has known. John Seton (Marischal, 1631) adopts the Scotist view about the primum cognitum; he quotes Zabarella, Ruvius and Durandus, but disagrees with all of them.

The first real sign of a reaction against Aristotle occurs in David Leech's theses of 1634. It is true that Leech rejects recent attempts to dispense with the Aristotelian materia and forma as first principles, but he takes issue with Aristotle

over the properties of natural body, and in 1635 he attacks some of Aristotle's statements in De coelo, and also about human intellect. However, Leech is basically unwilling to depart from Aristotelian physical concepts, as his 1636 theses show: "Although Aristotle's definition of movement appears at first sight very difficult and unweildy, it has however been so skilfully conceived and expressed, that we think it by far the most accurate of all explanations offered hitherto."

The theses of the 1640s remain traditional, but with Andrew Cant's 1654 and 1658 theses we have references to more modern natural philosophers. Cant cites Descartes and Regius on questions of time and place. He mentions the explanations of rainbows given by Aristotle, Kepler, Scaliger, Cardanus and Vitellus. On meteors he quotes Seneca, Pliny, Keckermann, Kepler and Lessius. In his 1658 theses Cant mentions Adrian Heereboord's attack on the number of elements, but states that he prefers to abide by the Aristotelian classification. There is a reference to Bacon's Natural history, but to offset this one might list a whole host of scholastics who are also quoted by Cant, e.g. Burgersdijk, the Coimbra commentators, Molina, Cajetan, Franciscus Bonae Spei et al. Cant seems indeed to be adopting the scholastic approach of balancing one authority against another, without offering any positive verdict in favour of any of them. Like Leech before him, however, Cant dismisses the recent revival of atomist theories, and his sympathies tend generally to be in favour of the older philosophy, e.g. in discussing magnetism, Cant refers to van Helmont's account of the phenomenon, but he prefers the account given by Athanasius Kircher, which is that



followed by most theologians, such as Franciscus Bonae Spei; similarly, Cant is acquainted with Harvey's theory of the circulation of the blood, but thinks that it contains many difficulties, and his account of optics is based on Athanasius Kircher rather than Descartes, though the latter is quoted.

George Meldrum's Theses physicae of 1659 have a strongly metaphysical slant. They begin by stating that philosophy is the handmaid to faith and then proceed to demolish Cogito ergo sum as a first principle, which is upheld by Heereboord as well as Descartes. Meldrum continues with discussions on causality and free will in which the authors quoted are all scholastic. Moving on to physics proper, Meldrum cites Aristotle, LeRees and Franciscus Bonae Spei on the principles of generation; he thinks that the cause of the earth's movement is subterranean fire and quotes Keckermann in support; and the rest of his philosophical positions are in the same Aristotelian vein.

Alexander Alexander (Marischal, 1669) is anti-Descartes, whom he ranks as an atomist, in the company of Maignan and Heereboord, but this does not mean that he is an Aristotelian. On the contrary, he quotes Boyle extensively and respects his views, particularly as expressed in his Treatise on colour.

Thomas Gray (Marischal, 1673) also mentions Boyle's Treatise on colour, but prefers the theories put forward by Descartes. He does not, however, accept Descartes's views on the origin of the world: "The world has not existed from eternity, as Aristotle claims, nor was it created by agitation of movement and matter, as Descartes claims, nor by a fortuitous collision of atoms, as Democritus claims; rather it derives from

God."

By contrast, George Middleton's 1675 theses are thoroughly Cartesian, dividing things into material and immaterial, claiming that the essence of matter is extension, recognizing only local motion, and giving Descartes's laws of movement, and accepting the Cartesian accounts of gravity, the elements, rivers and fountains etc. Middleton also refers to Newton's experiments with light, and comments that they are worthy of philosophical scrutiny; however, one suspects that they were possibly beyond the capabilities of the students, since Middleton says that he will leave them to be discussed and investigated elsewhere.

We have already seen instances of Robert Forbes's anti-Cartesianism in his logic, metaphysics and ethics theses; his physics theses are equally opposed to Descartes. In 1680 Forbes states that although some freedom should be allowed in natural science, this has got out of hand in the present century; he then attacks Descartes's theory that there are three elements, and proclaims his allegiance to the Aristotelian first matter. His 1684 theses show no change in position.

John Buchan begins his 1681 theses by stating that he is not going to be the mouthpiece of any one philosopher and, true to this, he adopts the positions of various writers in his physics theses. He is a Cartesian in his contention that the essence of matter is extension, in his denial of a vacuum (he claims that the experiments of Boyle and Torricelli do not prove the existence of a vacuum) and in his statement of the first principles (where he rejects the theories of van Helmont, the Chemists, Epicureans and Peripatetics). However, he is perplexed by Descartes's



definition of movement, and claims that the explanations given by Rohault and Clauberg do not go very far towards clarifying Descartes's position. Buchan refers favourably to Newton's experiments on light and colour, and also to Boyle's treatise De formis et qualitatibus, and ends by listing the inventions which have aided science in the 17th century, viz. the microscope, telescope, thermometer, barometer and air pump. He speaks in glowing terms of the advances made in anatomy, mathematics (by Napier) and algebra (by Vieta, Descartes and Wallis).

James Lorimer's (Marischal, 1683) theses are Cartesian. Indeed he even accepts Descartes's contention that brutes are automata, a theory at which many of the otherwise thoroughly Cartesian regents baulk. However, he also refers to the experiments relating to air carried out by Boyle, Torricelli and Otto von Guericke at Magdeburg. Lorimer concludes his theses by praising Descartes's achievements in the realm of mathematics, and poses some questions which show the kind of subject being debated in the university courses: "Why does water in a syphon not go any higher than 31 feet? What is the cause of tides? What is the origin of comets?"

Thomas Burnet strikes a somewhat surprising note in his theses of 1686 when he rejects the opinions of Aristotle and Descartes on first principles (which, he says, have been regurgitated ad nauseam in the schools in recent years) in favour of Zeno's, i.e. that all bodies derive from indivisibles devoid of extension and parts. He thinks that it is virtually impossible to explain the nature of movement, and neither Aristotle, Epicurus, Descartes nor Rohault has been able to do so. Nor have time and

place been accounted for satisfactorily.

Cartesian physics continue to predominate in the 1690 theses, as we might expect from the Cartesianism of the general and special physics courses produced by Marischal and King's Colleges, but there are an increasing number of references to the theories of other scientific writers. George Fraser (King's, 1691) describes Boyle's and Mariott's experiments on the nature of air, and also refers to Leeuwenhoeck's discoveries with the microscope, especially relating to animal seed. Alexander Moir (Marischal, 1691) describes Huygens's experiments on reflection and refraction, and Wallis's explanation of tides; he is uncertain whether to accept Wallis's or Descartes's theories, and compromises by claiming that the true explanation is probably a combination of their ideas. Moir also mentions Newton's theory of movement, but leaves others to debate the truth of it, since it is quite opposed to Cartesian principles. George Peacock (Marischal, 1693) congratulates Bacon, Descartes and Boyle for establishing materia and notus as principia. Harvey, Pecquet and Willis are praised for their contributions to medical science. In a somewhat surprising postscript Peacock entertains the possibility of aeroplanes: "The art of aeronautics is not entirely impossible; for a little ship can be fashioned to carry a given number of men into the air; they can use its oars or wings to steer in the fluid air through regions far above the highest mountains."

The first rejection of Cartesian physics appears in Alexander Fraser's theses (King's, 1693). They begin by attacking the first principles proposed by the chemists, Epicureans and Peripatetics. Fraser goes on to say that: "the essence of matter



does not consist in penetrability, nor in extension alone, nor in sensibility, but in impenetrable extension." He does not accept Descartes's explanation of movement, because it has been proved false by experiments. Descartes's ideas about colour are ingenious, but they have been superseded by Newton's. Fraser does not know what to think about gravity, but states that the Cartesian theory will do for want of a better one. He ends his theses by describing the human body, and refers to recent discoveries made by Malphigi and Leeuwenhoeck.

George Skene (King's, 1696) is loud in his praises of the new mechanical philosophy. Robert Boyle is acclaimed as its most outstanding practitioner, and the experiments of Giovanni Alfonso Borelli are also described. William Smith (Marischal, 1700 and 1704) extols the achievements of the Royal Society, Malphigi, Reid, Swammerdam and Grew. He says that Descartes's theories are not always true, but are the best we have, so will be expounded by his pupils. Thomas Burnet is criticised for having deprived the Scriptures of all life by allegorising them in his Sacred Theory, and Whiston too is censured, because he is "more addicted to Newton than to Moses." Keill has shown the shortcomings of both Burnet and Whiston, but he himself is too offhand in his treatment of all other philosophers, both old and new. However, it is Keill's work that Smith favours most, together with that of Tschirnhaus. In 1708 Smith maintains that experiments and mathematical calculations are essential for physics, and he praises Newton's use of analytic and synthetic methods. Newton worked from the particular to the universal, experimenting and observing; his experiments and mathematical calculations are

extremely accurate. Keill is again recommended and Huygens's theories about light are cited.

Although Black's special physics were Cartesian, he had abandoned Cartesian ideas by 1705, and seems to favour Keill's mathematical method. George Fraser too, whose 1691 theses were completely Cartesian, now admits that many of Descartes's physical theories have been superseded (though he still upholds the Cartesian method in the logic part of his theses, and his metaphysics are Cartesian). For instance, Fraser says that Descartes's laws of movement do not agree with experiments.

The three last <sup>Aberdeen</sup> theses we possess <sup>within the period under discussion -</sup>, those of James Urquhart (King's, 1710), George Peacock (Marischal, 1711) and William Smith (Marischal, 1712)-are all thoroughly Newtonian.

St.Andrews' earliest physics lectures, like those of the other universities, are more or less completely Aristotelian. We have no physics lectures between 1664 (when they are still very Aristotelian) and 1682 (when they are mainly Cartesian), but the date of the changeover can be pinpointed more accurately by the theses.

In 1682 Alexander Grant (St.Leonard's)<sup>1</sup> divides his subject into general and special physics. He concludes that extension is the essential attribute of matter, and that impenetrability and divisibility are the properties of matter, citing various proofs in support. Rohault and Descartes are quoted on movement, and the Cartesian rules of movement are set out, again with supporting evidence. Boyle's air-pump, the

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1. St.A - Ms.36225



thermometer and the baroscope are all described. The Cartesian theory of the elements is upheld, but while on this topic Grant describes the Newtonian theory of light and colour, which seems to contradict the Cartesian.

James Martin's lectures of 1684,<sup>1</sup> delivered at St. Salvator's, are similar to Grant's. He begins by quoting certain axioms basic to physics, which echo Tran's in his 1699 lectures, viz. (1) No properties or actions derive from nothing; (2) Nothing can come about from absolutely nothing; (3) Whatever is truly something cannot be entirely reduced to nothing; (4) Every effect presupposes a cause; (5) Whatever effect does not depend on us must depend on some other cause; (6) Any extended object which is simple and indivisible will always remain unchanged in the same state; (7) All change happens as a result of an external cause; (8) No effect or change exceeds the force of its cause. Various experiments are mentioned, e.g. those of Robert Boyle, Robert Hooke, Torricelli and Otto von Guericke at Magdeburg. The uses of the baroscope, barometer and thermometer are listed, together with the practical, mechanical uses of syphons in technology. We have moved beyond the abstract Aristotelianism of the earlier lectures, with its scorn for things mechanical. The laws of movement given by Martin are Cartesian; so too is the theory of elements. Martin describes the Newtonian hypothesis about light and colours, referring to Transactions 80<sup>2</sup>; he states that this theory does not in fact invalidate Descartes's general hypothesis, and finally refers the student to Boyle's Treatise on colour.

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1. EUL - Dc.8.15

2. i.e. the Philosophical Transactions of the Royal Society for Feb. 19, 1671, which contain A letter of Mr. Isaac Newton... containing his New Theory about Light and Colours.

The earliest St. Andrews theses are fairly Aristotelian in their approach to physics, but not all the regents agree with Aristotle on every score; e.g. John Petrie in 1603 rejects the idea of planetary intelligences, while John Strang in 1611 holds, contrary to Aristotle, that there is no real distinction between celestial and sublunar matter. Zabarella's name recurs in the early theses. Mungo Murray's theses of 1628 reject the scholastic doctrine of transubstantiation.

In 1629 John Wedderburn states at the beginning of his very Aristotelian theses that Aristotle threw light on physics where the ancients had been in darkness. The type of question he considers a physical problem strikes us as rather peculiar and verging on the metaphysical rather than the physical, e.g. "Was the earth created with or without its mountains? Were roses created with or without thorns before Adam's fall?" Wedderburn disapproves of the attempts of Ramus and Coclenius to prove that there is no first matter.

Mungo Murray's 1634 theses are still very Aristotelian, and the authorities quoted include the scholastics Scaliger, Mendoza, Bonaventura, the Coimbra commentators, Vasquez, Molina, Durandus et al. However, Murray's theses are less concerned with abstract discussions of materia and forma than some of the earlier and contemporary theses; instead they deal more with actual physical phenomena, e.g. tides, rain etc.

Barclay's theses of 1631 proclaim that the earth is nothing other than a great magnet, and in 1635 George Wemyss rejects the Aristotelian explanation of the movement of projectiles being due to the impulse of surrounding air; he thinks the cause



of this type of movement is an impulse from a moving object.

The first mention of Descartes to appear in the St. Andrews theses occurs in 1657, when William Campbell dismisses Descartes as "futile", (a) because he supposes everything to be false and thus paves the downward path to atheism, scepticism etc., and (b) because he undertakes to explain all natural phenomena from the quantity, position and movement of particles of the first, second and third element. The Cartesian notion of imaginary space is also dismissed with scorn. Campbell states that Aristotle's principia remain unshaken so far; he quotes Kircher on many points, and Hainline and Regius on optics.

Robert Hamilton favours the new experimental philosophy in 1668, recommending the works of Robert Boyle and Joseph Glanville. He rejects the physics taught by the Jesuits and proposes to take as his guide Thomas Willis, professor of philosophy at Oxford. Cartesian and Baconian principia are set out, and also atomist principia, which Hamilton says have recently been adopted by Cassendi, Mersenne, Basso and Maignan. Cartesian mechanism, together with experimental philosophy, have made it quite clear that the arid hallucinations concerning particular substantial forms and sensible qualities should be completely banished from the schools. Hamilton agrees with Descartes in only admitting local motion, and in stating that celestial and terrestrial matter are the same, but he rejects the Aristotelian commonplace (also upheld by Descartes) that nature abhors a vacuum, citing as proof the experiments of Torricelli, Mersenne, Charleton, Basso and most of all Boyle. Hobbes's view that "time, place and space are phantasms" gains Hamilton's

support, together with his rejection of the Peripatetic first principles of materia, forma and privatio. However, Hamilton is not prepared to go the whole way with Hobbes; he argues that to claim that the world is eternal, as Hobbes does, is in fact to deny God's existence, and this is where Hobbes goes wrong.

As we have already seen in his theses relating to logic and metaphysics, William Sanders (St.Leonard's, 1674) is a thorough-going Cartesian. In his physics theses he lists the contributions Descartes has made to physiology: laws of movement, works on reflection and refraction, on tides, on the magnet, on vision, light and colours, and on rainbows and parhelia. Sanders accepts the Cartesian dictum that extension is the sole property of matter, and he also agrees with Descartes that there is no vacuum. There is a brief reference to Newton's theory of light, but Sanders thinks that it leaves much to be explained, and prefers Descartes's theory.

Equally Cartesian are the theses of Alexander Grant (St.Leonard's, 1676), Alexander Cockburn (St.Leonard's, 1679), James Martin (St.Salvator's, 1681) and John Munro (St.Leonard's, 1686). They deal with laws of movement, theories of light and colour etc. - in short, with all the physical topics upon which Descartes had expressed his views. Grant recommends to his students the works of Clauberg, Rohault and Legrand, and he rejects the arguments put forward in the recently published work Idea physiologiae peripateticae et Anatomies Cartesianismi. Martin refers to Newton's experiments with light and colour, but prefers the explanations given by Boyle in his Treatise on colour.

Newton comes into his own in James Gregory's 1690 theses.



Gregory says that Newton's Principia have outstripped Descartes's by far; they not only form a basis on which we can construct a system of natural philosophy, but point us beyond the stars and sun to the immense universe. The Newtonian laws of movement are accepted, and Gregory also refers to laws of movement noted by Wallis, Wren and Huygens. He shows how ill-founded was the explanation of gravity put forward by Descartes, Perrault, Jessop and others, and he also criticises Huygens, saying that he cannot see how Huygens can maintain in his recently published treatise on gravity that he agrees with Newton that gravity is in proportion to the quantity of matter, when he himself declares that matter is utterly devoid of gravity. Finally, Gregory states his allegiance to Newtonian theories of light and sound.

Newtonian ideas are also upheld in the 1697 theses of Alexander Scrimgeour, but his fellow regent at St. Leonard's, John Loudon, is wholly concerned in his physical theses with showing the dangerous atheistic tendencies of Cartesianism, in accordance with which aim he dismisses the works of Rohault. Loudon omits to substitute any positive doctrines for the ones he dismisses.

Craigie and Forrester have little in the way of physics in their 1703 theses, but from what there is it would appear that Craigie favoured Newtonian ideas, but Forrester still appeared to give some credence to Cartesian views (e.g. he adopts the Cartesian laws of movement).

From this survey a general picture emerges of the physics taught in the four universities. Within the Aristotelian-Cartesian-Newtonian framework which I outlined at the beginning of the chapter there are numerous references to the experiments

and writings of contemporary natural philosophers, beginning in the period 1665-70 approximately.

One of the points in Aristotelian physics which is most frequently questioned by the regents is the existence of a vacuum, and in this connection the experiments carried out by Torricelli are cited again and again; they are first mentioned by Blair (Glasgow) in 1666, and then by Wishart (Edinburgh) in 1671, and thereafter by regents of all the universities. The experiments which were performed at Magdeburg are also described enthusiastically by the regents, and there are one or two references to the work of Giovanni Alfonso Borelli.

Robert Boyle receives universal acclaim from the regents. His experiments, especially those with the air pump, are mentioned frequently by regents of all four universities from 1670 onwards, and his Tractatus de origine formarum et qualitatum is often referred to (e.g. by Buchan (King's) in 1681, Skene (King's) in 1696, and in the Glasgow dictates of 1676). The Treatise on colour is another work of Boyle's which is mentioned (e.g. by Scott (Edinburgh) in 1698, by Gray (Marischal) in 1673) and by Martin (St. Salvator's) in 1681, who prefers Boyle's explanation of colours to Newton's).

Boyle's works were bought extensively by the libraries. At Edinburgh various works on his experiments were acquired in 1661, 1664 and 1666, and his Reflections, Paradoxes and Tractatus de origine formarum in 1666. Copies of his Sceptical Chemist were purchased in 1672 and 1683. Glasgow bought his Improvement of Natural Philosophy in the 1660s and the library list dating from 1691 contains other works by him. King's College received



Boyle's Experiments of cold and his Paradoxa hydrostatica in the Scougal bequest of 1684, and their 1700 catalogue lists Boyle's complete works. At Marischal College Boyle's Experiments concerning the air were bought by the regents as an addition to Duncan Liddel's collection. Gregory purchased Boyle's complete works for the university library of St. Andrews, while St. Leonard's College received Boyle's Experiments in the bequest of John Wedderburn (1678).

Other English scientists who are mentioned or whose experiments and observations are described in the dictates are Ward, Wallis, Wren, Moxon, Flamsteed, Hooke and Keill. Most of these scientists were connected in some way with the Royal Society. Both Seth Ward (1617-89) and Robert Hooke (1635-1702) were members of the group of scientists which met at Wadham College in Oxford in the 1650s, many of whom went on to become founder members of the Royal Society. John Wallis (1616-1703), who was Savilian professor of geometry at Oxford, associated with Boyle and other experimental scientists, and based his approach on Torricelli. In mathematical history he ranks as an important precursor of Newton. Joseph Moxon (1627-91), the hydrographer and mathematician, was elected a fellow of the Royal Society in 1678, while John Flamsteed (1646-1719), the Astronomer Royal, contributed regularly to the Philosophical Transactions of the Royal Society. Christopher Wren (1632-1723) is best remembered as an architect, but he played a considerable part also in the scientific movement of the 17th century. Together with Ward and Hooke he carried out experiments at Wadham College, and later held the Chair of Astronomy at Gresham College; from 1660 to 1673 he was Savilian

professor of astronomy at Oxford. This latter post was also held by John Keill (1671-1721), who was an enthusiastic exponent of Newtonian teaching. The Royal Society is at all times spoken of in glowing terms by the regents, who praise the contributions made by it to knowledge and its fostering of experimental philosophy. Cunningham, Massie, Law and Lidderdale of Edinburgh, Hamilton of St. Salvator's and Smith of Marischal are only a few of the many regents who mention the Royal Society in their dictates or theses. There are also a number of references to the Philosophical Transactions. For instance, Charles Erskine of Edinburgh in 1703 notes Wallis's contribution to number 43 of the Philosophical Transactions (on the general laws of motion), and Black cites them several times in his course on special physics.

The library lists reflect this interest in English scientists and the Royal Society. Edinburgh purchased Seth Ward's Astronomical Treatise in 1656; Wallis's Mathematics in 1661, 1681 and 1702, and his Mechanica sive de motu tractatus geometricus in 1671. Hooke's posthumous works were bought in 1712, John Keill's attack on Burnet's theory in 1698, and his Introduction to true physics in 1702 (the year of their publication) and 1704. The library list for 1668 includes a history of the Royal Society, while in 1676 the Transactions up to 1674 were bought from "Mr. Gregory" (possibly the elder James Gregory, who had died the previous year); this acquisition was supplemented by the purchase in 1694 of the volumes from July 1687 to August 1694, and in 1708 of the volumes to the end of 1700. King's College lists in its 1700 catalogue: Moxon on the globes, Hooke's Micrographia, Ward's Astronomy, Transactions of the Royal Society for 1671-76 and



4 Volumes of Oldenburg's Philosophical Transactions. Among the books bought for Marischal College after 1673 are Wallis's Mechanics and Keill's Introductio in veram physicam. Turning to St. Andrews we find that Gregory purchased for the Observatory Hooke's Micrographia, the Philosophical Transactions and Wallis's Opera mathematica. Finally, Glasgow purchased Hooke's Micrographia and his lectures and collections in 1695, together with Moxon's Mechanical Exercises; the list of additions to the 1691 catalogue includes the Philosophical Transactions and John Keill's Examination of Dr. Burnet's and Mr. Whiston's theories of the earth.

French scientists also feature prominently in the natural philosophy teaching. Emmanuel Laignan is perhaps the most conservative of those mentioned, since his physics are largely Aristotelian. He is cited by Wishart, Paterson and Cockburn of Edinburgh; by Blair and Tran of Glasgow; by Hamilton and Grant of St. Andrews; and by Cant and Alexander of Aberdeen. It is perhaps significant that the latest favourable mention of him is by a regent from Glasgow - John Tran in 1695.

Marin Mersenne (1588-1648), the French mathematician and scientist who did so much to further communication between contemporary scientists and philosophers, is cited by William Law (Edinburgh, 1700), Robert Hamilton (St. Salvator's, 1668) and in the King's College course of 1702.

The Cartesian experimental physicist, Jacques Rohault (1620-72) features in the dictates or theses from the 1670s (the earliest mention of his work is made by John Wishart of Edinburgh in 1674) until the end of the century. His Traité de physique, published in Paris in 1671, was a standard textbook for nearly

50 years. Samuel Clarke, rather than write a Newtonian physics, translated Rohault's work and added Newtonian footnotes. The work of Rohault's pupil, Pierre-Sylvain Régis (1632-1707) is mentioned by regents from Edinburgh, St. Salvator's and King's - all in the 1690s.

Cockburn and Law of Edinburgh, and Fraser of King's College all refer to the writings of Edme Mariotte (1620-84) who was a founder member of the French Academy of Sciences, and has been described as the first experimental physicist of France. The French Academy's first secretary, Jean Baptiste Duhamel (1624-1706), who contributed to the diffusion of Cartesian philosophy in France, is cited by regents from 1671 onwards, most frequently in Edinburgh, but also at the other universities.

Other French scientists mentioned by the regents include Claude Deschales (1621-78), Claude Perrault (1613-88) and Jean Leclerc (1657-1736), who is better known perhaps for having introduced Locke's work to the Continent.

Scientific works by these French writers are well represented in the library lists. At Edinburgh Mersenne's Mathematics were acquired in 1657. Deschales's Cursus mathematicus was bought in 1676 from Gregory. Duhamel's Opera philosophica appear in the list for 1688, together with Mariotte's Fourth essay of colours. Leclerc's Physica were bought in 1696 and Rohault's in 1712. In 1695 there is a record of the purchase of Divers ouvrages de mathématiques et de physique et Observations de l'astronomie et la géographie, par Messieurs de l'Académie Royale, published in 1693. A Latin version of Rohault's Traité de physique, published in 1674, was purchased by Edinburgh as



early as 1676, and the French version in the following year. As might perhaps be expected, Glasgow acquired most of these works at a later date than Edinburgh. It is only in the library list for 1691 and later that we find the following: Maignan's Philosophia sacra, Duhamel's History of the Royal Academy of Sciences and his philosophical works. Régis's Système de philosophie, Leclerc's Physics and Duhamel's Philosophia vetus et nova were received as donations in 1699. At the beginning of the 18th century Glasgow's acquisitions in this field increased, with the purchase of Histoire de renouvellement de l'Académie Royale des Sciences en 1699...avec un discours préliminaire sur l'utilité des mathématiques et de la physique par M.de Fontenelle (Amsterdam, 1709); Histoire de l'Académie Royale des Sciences 1699-1719; Deschales's Mundus mathematicus (1690); Clarke's edition of Rohault's Physics (London, 1702); Régis's Système de philosophie and the works of Duhamel.

At Aberdeen King's College received Duhamel's Consensus veteris et novae philosophiae in the Scougal bequest of 1684, and the 1700 catalogue includes Deschales's Mathematics and Rohault's Physics. Among the books bought for Marischal College after 1673 were Deschales's Cursus mathematicus and Leclerc's Physics. Gregory purchased Mersenne's Cogitata physico-mathematica, Rohault's Physics and Duhamel's works for the Observatory at St.Andrews, and in 1699 the university library acquired Leclerc's Physics and Duhamel's Philosophia vetus et nova. St.Leonard's College received a number of French works in the Wedderburn bequest, including Duhamel's Liber de meteoris et fossilibus; Astronomia physica; and Consensus veteris et novae

philosophiae; Mersenne's Mathematics; Rohault's Physics; and works by Maignan.

Among recent Dutch scientists quoted by the regents are Leeuwenhoeck and Huygens. Huygens in particular is mentioned often and favourably by regents at Edinburgh, St. Andrews and Aberdeen, but I have found no mention of him in the Glasgow dictates or theses. Edinburgh University Library bought Huygens's Horologium oscillatorium sive de motu pendulorum from Gregory in 1676, and his Traité de la lumière was purchased in 1690, together with Leeuwenhoeck's Opera. At Glasgow Leeuwenhoeck's Observationes microscopiales were bought in 1699 and Huygens's works at the beginning of the 18th century. Marischal College also acquired Huygens's Horologium oscillatorium, Traité de la lumière and Cosmothæreos at the beginning of the 18th century.

I have already covered most of the libraries' scientific acquisitions when describing the interest shown by regents in individual scientists, but the following purchases or donations give further evidence of how interested the universities were in keeping abreast of contemporary scientific developments. At Edinburgh Bacon's Natural History was purchased in 1640, Cassendi's Philosophia Epicurea in 1653, his life of Tycho Brahe in 1655, his Exercitationes Paradoxicae in 1656, his Institutio Astronomica in 1657 and his complete works in 1658. Gilbert's De magnetæ was bought in 1658, Kepler's Dioptrics in 1667, Physiologia Epicuro-Cassendo-Charletoniana and Clauberg's Physica nova and ontosophia in 1668, Difficiles nuzæ or observations touching the Torricellian experiment in 1675, Harvey's Theory of the circulation of the blood in 1676 and another copy in 1681,



Borelli's De motu animalium, seu Atrium physico-mathematicum in 1688, together with Burnet's Sacred theory of the earth, Malpighi's Anatome plantarum and De structura viscerum in 1693, Grew's Anatomy of plants in 1694, and Whiston's Theory of the earth in 1698.

Among donations Edinburgh received in 1669 George Sinclair's Ars magna et nova gravitatis et levitatis, and in 1672 his Hydrostatica, both donated by the author. David Gregory donated some mathematical books in 1689, including James Gregory's Exercitationes geometricae (London, 1668) and Optica promota (London, 1663), and in 1695 he gave his own Elementa catoptricae et dioptricae. Mr. Lamb, merchant, gave the library 64 books in 1695; they are mostly the works of scholastic authors, but include Cassendus adv. Aristotelicos, Clauberg's Physica and Rohault's Traité de physique.

Glasgow purchased Bacon's Essays in the 1640s and his Novum organum and complete works in 1691. Philosophia Epicuro-Gassendo-Charletoniana was bought in 1656, together with Harvey's De generatione animalium. Antony Legrand's Historia naturae was acquired sometime in the 1660s or 1670s, Whiston's Theory of the earth in 1697 and his Vindication of his theory in 1699. The 18th century additions to the 1691 list include Musaeum Regalis Societatis or a Description of the natural and artificial rarity of the Royal Society, by Nehemiah Grew (1685), The natural history of animals with an account of their dissection before the Royal Academy at Paris (London, 1702), Malpighi's letters and Experimental philosophy containing experiments microscopical, mercurial, magnetical, by H. Power (London, 1664).

George Sinclair donated his works to the library, viz.

Ars nova et magna gravitatis et levitatis (Rotterdam, 1669),  
Hydrostatica, or the Weight of fluid bodies made evident (Edinburgh,  
 1672), Principles of astronomy and navigation (Edinburgh, 1688),  
 and Tyrocinia mathematica (Glasgow, 1661). In 1712 the Royal  
 Society donated to Glasgow (and also to Aberdeen and St. Andrews;  
 possibly to Edinburgh too, though there is no record of it) a copy  
 of Commercium epistolicum D. Johannis Collins et aliorum de analysi  
promota, which was published by the Society in that year.

In addition to the works already mentioned, King's  
 College received in the Scougal bequest Bacon's Natural history,  
 Charleton's Physiology and Sebastian Basso's attack on Aristotle.  
 The works of Thomas Burnet and Fallopi were donated to the library  
 in 1696, and the 1700 catalogue includes Legrand's Historia  
naturae, Cassendi's Exercitationes paradoxicae and Whiston's  
Astronomical principles. Marischal College received Harvey's  
Exercitatio de motu cordis and Basso adversus Aristotelem in  
 donation in 1657 and later in the century the masters bought for  
 the college Sinclair's Ars magna et nova, and James Gregory's  
Optica promota.

At St. Andrews Gregory purchased Gilbert's De magnete,  
 Legrand's Historia naturae and Bacon's works for the Observatory.  
 In 1699 the library acquired Whiston's Theory and in 1703 the  
 regent Alexander Scrimgeour bought for the library David Gregory's  
Astronomiae physicae et geometricae elementa, and George Cheyne's  
Fluxionum methodus. The Wedderburn bequest to St. Leonard's  
 College in 1678 included works by Charleton, Malphigi, Cassendi  
 and Gilbert's De magnete.



Moreover, the library funds sometimes purchased instruments as well as books. We have records of scientific and mathematical instruments being bought for Glasgow in 1693 and for Marischal College in 1670.

From this survey of the state of physics teaching in 17th century Scottish universities, it would appear that the regents held more advanced ideas than might be supposed not only from the statements which often appear in general histories of the universities, but also from the actual curricula statements set out above in Chapter 2.

For the first half of the century the content of the dictates and theses tallies with what is laid down in the curricula, viz. Aristotle's Physics, with some astronomy and anatomy. The various statements which appear in the second half of the century do not prescribe in any great detail what was to be taught in physics. The St. Andrews masters said in 1687 that in the final year the student was to learn "the rest of physics, the history of nature and experiments, together with the cosmography, optics, spherical trigonometry and as much of the mechanics as time will allow." In 1695 the Parliamentary Commissioners proposed that general and special physics be separated, but this idea did not meet with favour. Glasgow claimed that the two parts of physics should be taught together and "experimental philosophy should be covered." The general rules drawn up by the universities for the composition of their courses stated that examples should be taken from the Peripatetic philosophy, especially in logic and metaphysics, though it was conceded that this was not always feasible in physics. More

advanced concepts of physics teaching were discussed at another meeting of the university delegates, when the motion was:

"Whether it be felt that in the 4th class natural philosophy (should) be taught explaining the several hypotheses and phenomena and these first natural without interposition of Art, and then to the experiments, which are now so frequent and famous everywhere, and that instruments be provided to show the phenomena and to teach how the same are explained according to the different hypotheses, leaving it to the regents to appoint disputations, allowing freedom to the students to emit their theses upon any of the hypotheses..." However, these statements give little hint of the great amount of Newtonianism to be found in the university dictates and theses of the 1690s and the beginning of the 18th century, not to speak of the numerous references to other scientists and their work.

Finally, what of the relative state of physics teaching in the different universities? Despite their statement of the need for experimental philosophy to be taught and their purchase of scientific instruments, Glasgow seems to have been the university most resistant to new ideas. There is very little Newtonianism in the dictates and theses of her regents, and the library lists show that most of the works relating to 17th century science were acquired comparatively late. Again and again we find that French and English scientists whose names occur frequently in the teaching of regents of Aberdeen, St. Andrews and Edinburgh are mentioned only once or twice if at all in the Glasgow dictates and theses. Aberdeen's courses of the 1690s were Cartesian, and they were criticised by St. Andrews for neglecting



Newton, but by the beginning of the 18th century Newtonian ideas appear in the Aberdeen theses. St.Andrews' comments suggest that Newton was favoured at the colleges of St.Salvator's and St. Leonard's earlier than at Aberdeen, though in fact Newtonian ideas appear in the St.Andrews dictates and theses at much the same date.

Edinburgh would appear to have been the most progressive of the Scottish universities. Support for the fact that Edinburgh was more advanced than St.Andrews comes from the reasons given by James Gregory for leaving St.Andrews to become professor of mathematics at Edinburgh, viz. "because some of the scholars, finding their courses and dictates opposed by what they had studied in the mathematics, did mock at their masters, and deride some of them publicly. After this, the servants of the college got orders not to wait on me at my observations: my salary was kept back from me; and scholars of most eminent rank were violently kept from me, contrary to their own and their parents' wills, the masters persuading them that their brains were not able to endure it. These, and many other discouragements, oblige me to accept a call here to the College of Edinburgh, where my salary is nearly double, and my encouragement otherwise much greater."<sup>1</sup> Frequently the first reference that we have to a 17th century scientist in the dictates or theses is made by an Edinburgh regent, and the library lists suggest that Edinburgh was probably the first in many cases to acquire modern scientific works, often purchasing within a year or two of publication.

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1. Quoted in Veterum laudes, ed.James B.Salmond, p.87

## 2.

Turning to cosmology, let us now examine the progress of Copernicanism in the university teaching.

In his 1634 dictates Rankin of Edinburgh, commenting on Sacrobosco, presents the Ptolemaic world picture.<sup>1</sup> He is aware of the ideas of recent astronomers who follow Copernicus in denying that the earth is at the centre of the universe, and he admits that Copernicus's theory makes it much easier to explain certain phenomena, but he dismisses such views as impossible.

Alexander Hepburn (Edinburgh, 1643)<sup>2</sup> also mentions Copernicus's opinion about the movement of the spheres, together with the opinions of George Peurbach and Johannes de Regiomontanus. However, there is no question about Hepburn's allegiance to Ptolemy, though he does point out errors in Sacrobosco; for instance, he says that Sacrobosco is inconsistent in some of what he says about the rising and setting of signs, and wrong in some cases; also, Sacrobosco's lack of knowledge led him to think certain parts of the world uninhabitable which we now know to be inhabited.

In 1651 Copernicus's ideas are still being dismissed as patently false.<sup>3</sup> Tweedie, lecturing in 1662,<sup>4</sup> acknowledges the existence of different theories about the earth's position, but describes the Copernican view as an absurd hypothesis; he concludes that the earth is at the centre of the universe and does not move, and cites as his authorities Clavius (a commentator

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1. GUL - Ms.Mu.184

2. EUL - Dk.5.5<sup>2</sup>

3. Dictates of James Wyman - EUL - Dc.8.36

4. EUL - Mic.M.645



on Sacrobosco) and George Buchanan (De sphaera, bk.1) who are supported by all the more reliable authors. Keckermann's Astronomy is also quoted by Tweedie as a sound source.

By 1672 Pillans is prepared to concede that the schemes of Copernicus and Tycho Brahe show ingenuity, but he prefers a modified version of the Ptolemaic system, since this does not go against what is recorded in Scripture.<sup>1</sup> In 1675 Wishart mentions five possible world systems: those of Ptolemy, Copernicus and Tycho Brahe, the Cartesian vortex theory, and a new system which places the moon at the centre of the universe.<sup>2</sup> Wishart's objections to Copernicus's theory are as follows: (1) it creates too many problems of gravity; (2) the earth is very heavy and cannot therefore move as quickly as Copernicus supposes; (3) buildings would turn upside down; (4) the movement of Mars as observed by us disproves the Copernican theory; (5) it is contrary to the Scriptures. However, he does not reject Copernicus outright; he merely states that to understand these systems better we need a clear conception of all the movements in the universe, and that the sphaera armillaris is very useful for this. Moreover, he agrees with Copernicus and Descartes in abandoning the Aristotelian idea that the sky consists of a crystalline substance. Wishart's position has not changed by 1680,<sup>3</sup> but there are additional references to recent experiments, e.g. the experiment carried out by Joseph Moxon, the Royal hydrographer, to discover the retrograde movement of the equinoctial.

In 1682 Massie adopts the Cartesian explanation of the

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1. EUL - Dc.6.4-5

2. St.A - Ms.1949

3. EUL - Dk.5.27

world and expounds the vortex theory, preferring this to the Copernican system.<sup>1</sup> Concerning the latter, Massie gets round the difficulty of the scriptures seeming to contradict Copernicus by claiming that they speak "not according to truth, but according to common opinion and appearance."<sup>2</sup>

Kennedy, lecturing in 1689<sup>3</sup> and 1692,<sup>4</sup> is also a Cartesian, but more cautiously so. He outlines the difficulties of the vortex theory, e.g. the vortices not all being the same size, the existence of sun spots and comets, but thinks that on the whole the Cartesian system provides a satisfactory explanation. Kennedy has whittled down the world systems that are worthy of notice to three - the Ptolemaic, Copernican and Tychonic. His criteria for determining which is to be adopted are two: (1) the one which explains the phenomena most satisfactorily; (2) if two do, the one which is simpler. After discussion of the relative merits of the three systems, Kennedy pronounces in favour of the Copernican, since it is (a) simpler, (b) more consonant with actual phenomena, and (c) gives a more convincing explanation of the phenomena of Venus and Mercury. For further information about the planets and their relation to the sun, Kennedy refers his students to Kepler. The difficulties of Copernicus's theory are resolved by Kennedy. He answers the charge of its being opposed to the scriptures in the same way as Massie does, adding that it is also wrong to reject Copernicus's system just because it is new and unfamiliar.

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1. EUL - Dc.6.23; Dc.5.115

2. Quotation from Massie's 1691 lectures - EUL - Dc.7.92

3. NLS - Ms.2075; EUL - Dk.3.31

4. EUL - Dc.8.118



While Massie and Kennedy were adhering to a Cartesian position, Willian Law was moving beyond this towards acceptance of Newtonian ideas.<sup>1</sup> Of the three world systems Law prefers the Copemican, but he disagrees with the vortex theory, and accepts Huygens's conclusions about circular movement, believing that the planets move in free space and that whatever moves does so in a straight line. Newton's theory of centripetal force is described, although Law claims that not everything Newton says about gravity can be true. Law also refers to Newton's observations of Jupiter's and Satum's satellites. In his 1696 lectures<sup>2</sup> Law lists a number of recent observations of celestial phenomena, among which are observations made by Cassini between 1665 and 1680; the student is referred to Cassini's Institutiones Selenicarum. Also mentioned are the eclipses of satellites seen by Picard and de la Hire. The work of Fatio de Duilliers on Saturn is praised, and reference is made to the machine invented by Romer which detects all planetary eclipses. Law also describes the experiment devised by Huygens and Mariotte to demonstrate various laws of movement.

Law's most systematic treatment of the different hypotheses about the universe is to be found in his lectures of 1701.<sup>3</sup> The difficulties of the Ptolemaic system are summarised as follows:

1. The Ptolemaics are wrong in supposing the heavens to be solid.
2. They fail to give a satisfactory account of the movements of Venus and Mercury.
3. It is impossible to conceive of spheres, especially the primum mobile, moving with the speed claimed by Ptolemy.

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1. 1692-93 - NLS - Adv.ms.22.7.3

2. EUL - Dc.8.53

3. EUL - Dc.8.43

4. The Ptolemaics resort to explanations which are too complicated, e.g. epicycles and eccentrics.

The Copernican system is the best we have, and is the one adopted by Galileo and Kepler, but it too is not without its difficulties, the chief one being the attribution of the earth's movement to the influence of the sun. Tycho Brahe's theory is seen as a compromise between the Copernican and the Ptolemaic systems; it has the virtue of being simpler than the Ptolemaic system and explaining the phenomena of Venus and Mercury, but it fails to reconcile the different movements of the planets and, like the Ptolemaic, it supposes an incredibly rapid movement.

Law says that there are numerous objections to the vortex theory and picks out the following for particular mention:

1. It presupposes infinite extension of the world.
2. The thick matter of which Descartes claims the planets are composed is unsuitable for movement.
3. The vortex which is supposed to encircle the earth is either the same as it was when it was a fixed star, or else is something different. Either way complications arise.
4. The movement of comets would seem to contradict the vortex theory.

Finally Law considers the Newtonian hypothesis. To understand it, Law says, we must accept the idea of mutual attraction of bodies, and also Newton's theories of gravity. The chief difficulty arises from the exceedingly fast propagation of light through immense distances, which cannot readily be explained.

Law is unwilling to commit himself wholeheartedly to any one of these systems, maintaining that a more detailed examination



of the different parts of the world is necessary before we can arrive at any conclusion. His lectures, however, show that he was well versed in what had been happening in astronomy. Apart from his outlining of the various world systems which I have just quoted, he describes Galileo's observations of sun spots and the conclusions he reached about them, Newton's deductions concerning the moon's revolutions, Kepler's invention which showed clearly the passage of the earth round the sun, and Huygens's objections to the vortex theory.

As late as 1698, however, the Cartesian system of vortices was still accepted by some regents; for instance, it gains support in William Scott's lectures delivered in that year.<sup>1</sup>

The Theses sphaericae of the early Edinburgh theses are largely based on Sacrobosco, though the regents do not accept ancient ideas without qualification. For instance, James Knox in 1601 rejects the Aristotelian planetary intelligences, and claims that there is only one sphere and that the celestial bodies are not immutable. However, the first reference we have to recent developments in astronomy is in William King's theses of 1612, which refer to observations made by recent philosophers, which show that the planets, especially Mars and Venus, diverge from the ecliptic by 8 degrees. King seems to have been the most progressive of the regents around this time; in 1616 we find him mentioning Copernicus's calculations of the sun's declination, and also the appearance of a comet in 1577, which indicated that changes can occur in celestial bodies.

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1. EUL - La.III.717

More contemporary or near-contemporary observations appear in the theses of Andrew Young (1621); he refers to the observations made by Tycho Brahe, Copernicus (1515) and the Bernardine observations of 1488; he also mentions some recent observations of celestial phenomena made at Edinburgh on March 9, 1617 and June 10, 1620. The first definite indication we have that the regents were beginning to doubt the truth of the Ptolemaic system occurs in James Reid's theses of 1622. He says: "Science is knowledge of an object through its cause; because of this given cause, it cannot be otherwise than it is. Thus, since various astronomers, e.g. Copernicus, Ptolemy et al. account for heavenly phenomena according to such varied principles and hypotheses, it follows that we can have no knowledge of things astronomical..." - a somewhat negative conclusion, but at least this shows a weakening of Ptolemaic authority.

A further movement in the direction of modernity is seen in Reid's 1626 theses; the earth is still considered the centre of the universe, but it is no longer unmoving; Reid states that it revolves on its own axis, and denies that he is opposing scripture by this contention. Reid also refers with approval to the observations made by Copernicus and Tycho Brahe on the earth's relationship to Mars.

William King was still teaching in 1628, and by this time he has added the reckonings of other modern astronomers; in addition to Copernicus he mentions Regiomontanus, Rheinoldus and Tycho Brahe, praising Brahe's measurements of the fixed stars. However, his 1628 theses return to the doctrine of the immutability of the heavens.



A statement made by Andrew Stevenson in 1629 to the effect that "astronomical observations are to be demonstrated not by any physical principles, but by geometry" throws an interesting light on the contemporary attitude to astronomy.

From 1629 we jump to Duncan Forrester's theses of 1641, which would seem to suggest that he was unaware of the criticisms that were being made of the system of eccentrics and epicycles. While not prepared to abandon the Ptolemaic world picture, Forrester adopts a conciliatory tone: he says it is too bold to state categorically that astronomical hypotheses, i.e. concerning eccentrics, epicycles etc. are true, when sometimes they are perhaps not even likely; it is enough to suppose that they are possible, enable accurate calculations to be made, and defend the phenomena.

The Copernican system had still not been accepted by 1661, when Wishart states that Copernicus's fiction is the "product of a deranged or fevered brain." Wishart makes no further reference to Copernicus in his theses, though he does refer indirectly to the Tychonic system. In the last set of his theses we possess (1680) we find him rejecting the Cartesian vortices.

As might be expected from Pillans's general conservatism, the Copernican theory is rejected in his theses also, on the grounds that "not only is it opposed to the firm and unshakable authority of the scriptures, but the sober and level-headed calculations of the philosophers have proved beyond doubt that the earth is the centre of the world." Sacrobosco is criticised, but not because of any major flaw in his arguments, merely because he confuses poetry with fact, failing to realise that the accounts of celestial phenomena that we find in the poets are not always

accurate.

Wood does not make any reference to the Copernican theory in his theses, but among the questions at the end of his 1670 theses is this one: "Which is to be preferred of the Ptolemaic, Copernican and Tychonic hypotheses? Or is the Cartesian better, or a fifth hypothesis quite separate from the rest?" There is no indication of what Wood thought the answer should be, but judging from his allegiance to Aristotle and the old philosophy elsewhere, he probably favoured the Ptolemaic hypothesis.

Paterson (1671, 1675 and 1679) seems to be the first regent actually to accept the heliocentric system. He appears to hold the Cartesian vortex theory, though with reservations. The next reference to Copernicus (and the first really favourable one) appears in 1682 with the theses of Gilbert McMurdo, who also describes Cassini's observations of the movements of Mars, Jupiter and Saturn.

After this all the regents accept the Copernican or Cartesian theory. Alexander Cockburn justifies himself in the eyes of theologians by stating in 1684 that there is not much difference between the cosmogony given by Descartes and that set out by Burnet in his Sacred theory of the earth. He also refers to the recent observations by Cassini and Hooke, which confirm that the earth has annual as well as diurnal movement. In 1688 Cockburn states that the Copernican hypothesis is the simplest and "almost divine"; nor do we need to add Deschales's qualification "if it were not contrary to scripture," since right reason is never opposed to scripture. Robert Lidderdale adopts the Copernican system "because it agrees with reason and experience."



Kennedy mentions newtonian theories of movement and gravitation in his theses of 1690 and 1694, as we have seen in the section on physics, but the first full exposition of Newton's planetary theories that we find in the theses occurs in 1704, when Charles Erskine gives an account of the discoveries of Leibniz and Newton: "Leibniz has shown beyond doubt that gravity derives from the impulse of surrounding fluid, as do magnetic actions; this is quite clear from his investigation into the causes of celestial movement. Newton's explanation of centripetal movement, his belief that celestial phenomena can be reduced to mathematical terms, and his a priori proof that the earth's shape is not spherical are all quoted by Erskine.

In view of the conservatism which is generally a characteristic of Glasgow's teaching, Copernican views were accepted remarkably early by her regents, in comparison with the regents of the other universities. In 1665 Blair outlines various world systems and pronounces in favour of the Copernican.<sup>1</sup> George Sinclair had described Tycho Brahe's system in 1660, together with his and Copernicus's observations on the position and movement of the moon.<sup>2</sup> He dismissed as unnecessary the apparatus of eccentrics and epicycles which had been introduced to save the phenomena, and concluded that planets have only a single movement from east to west.

However, alongside this acceptance of the heliocentric system, the Ptolemaic system still had its adherents. Lecture notes of 1662-63<sup>3</sup> mention Tycho Brahe and Copernicus, but the

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1. GUL - Ms.Gen.379

2. NLS - Ms.9382

3. NLS - Ms.8491

regent thinks that the whole subject is so hedged around with difficulties that it is best to stick to the Ptolemaic view. In 1681 Thomas Nicholson seems somewhat undecided about which system he should adopt.<sup>1</sup> He sets out the theories of Ptolemy, Copernicus and Tycho Brahe, and gives an account of the Cartesian vortex theory; although he may favour the more recent hypotheses, he comments that the Ptolemaic explanation is certainly the most commonly accepted.

In John Tran's lectures of 1681,<sup>2</sup> however, the Copernican system is accepted as being the least beset with difficulties. Tran answers the physiological, astronomical and theological arguments frequently cited against Copernicus.

The later dictates scarcely mention world systems.

Turning to the theses we find James Dalrymple supporting the Ptolemaic system in 1646. Mair refers to the systems of Copernicus and Tycho Brahe in 1671; he thinks that the Copernican system is worthy of consideration, but believes that in all three systems (i.e. the Copernican, Ptolemaic and Tychonic), the distances and sizes of the heavenly bodies are uncertain because of the lack or haziness of information about parallaxes and eccentrics.

Surprisingly, John Boyd is still in favour of Ptolemy in 1693. He states that "worthy astronomers, following Ptolemy as well as Copernicus, have claimed that both the Copernican and the Ptolemaic hypotheses save the celestial phenomena. Although the fact of terrestrial movement (on the Copernican hypothesis)

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1. St.A - Ms.36239

2. GUL - Ms.Mu.227



would explain all the phenomena satisfactorily, yet that theory of Pythagoras (whom Copernicus followed in this fiction) will never be able to explain why movement is attributed to the entire terrestrial globe, or why it is triple; accordingly we prefer the Ptolemaic hypothesis to the Copernican." Gerschom Carmichael does not have much to say on astronomy and what he does say is somewhat enigmatic: "The astronomers truly state that the earth revolves each day round its own centre, and each year round the sun; but with no less truth popular opinion declares that the sun circles the earth daily." However, the general Newtonianism of Carmichael's 1707 lectures suggests that he was a supporter of Newton's celestial as well as his terrestrial physics, and indeed his theses do reject the idea of vortices.

The first reference that we find to the Copernican system in the Aberdeen dictates occurs in 1633 in the Tractatus de sphaera given by William Johnston, professor of mathematics at Marischal College.<sup>1</sup> After describing the Copernican hypothesis, Johnston goes on to say that even Copernicus had to admit that to the senses the earth appears to be at the centre of the universe; there is no reason why we should not therefore adhere to the commonly held view. Johnston makes this the occasion for some remarks on the presumption of the human intellect. However, later on in the same notebook we find a Universal treatise on planetary theories in which the hypotheses of Ptolemy, Copernicus and Tycho Brahe are discussed with the aid of diagrams and here Johnston would seem to be accepting the heliocentric theory.

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1. AUL - M.181

There is a big gap before the next reference in the dictates to world systems, which occurs in George Fraser's lectures, delivered at King's College in 1687.<sup>1</sup> Fraser establishes that the sky consists of the same matter as sublunar bodies, that it is corruptible (from observations of comets in 1604 and 1672) and that it is fluid. He compares the Ptolemaic, Copernican, Tychonic and Cartesian theories, and pronounces in favour of the last, since it not only agrees best with the astronomical phenomena, but is the most consistent with reason, and gives the best explanation of virtually all natural phenomena.

James Gilchrist, lecturing in 1689, does not commit himself to any one system, but outlines the Ptolemaic and Copernican hypotheses.<sup>2</sup>

William Black, however, is in favour of the Copernican hypothesis in his Introduction to special physics, produced as part of the uniform course in 1696.<sup>3</sup> He compares the Copernican with seven other systems (the Ptolemaic, Platonic, Egyptian, Tychonic, and those proposed by Longomontanus, Ricciolus and Stair), but thinks that it is by no means obvious which system is the correct one: in many ways the explanations given by Longomontanus and Stair present fewer difficulties. Black leaves the students to make their own minds up about which hypothesis they will adopt, but states that "setting aside authority, the Copernican hypothesis seems to many, and to me also, to be preferable to all the rest."

The one reference we have to cosmology in the later Marischal lectures - in George Peacock's lectures of 1688<sup>4</sup> -

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1. AUL - K.151      2. AUL - K.156      3. EUL - Dc.1.32  
4. AUL - M.182



is in favour of the Cartesian vortices.

The Aberdeen theses go further back than the dictates, and show that in 1622 the regent Alexander Luman was acquainted with Copernicus's astronomical observations ( he refers to Book 3 of Copernicus's De revolutionibus), although the world picture he gives is basically Ptolemaic. Other regents at this period do not refer to Copernicus, but there are some signs that the Aristotelian concept of the universe was being questioned, e.g. William Forbes (King's) asks in 1623 "Whether celestial matter is fluid"; James Sibbald (Marischal) states in 1623 that "the sky is not animated"; and John Lundie (King's, 1626) describes the lengthy debate which has been carried on by philosophers as to whether the matter of which corruptible and incorruptible substances are composed is the same. Aquinas, Suarez and others deny that this is the case, but Lundie agrees with Avicenna, Scotus and Scaliger who affirm it, thus rejecting the idea that the sky consists of a special kind of quintessence.

The next reference we have to Copernicus occurs in Andrew Strachan's theses (King's, 1631), where he gives both Ptolemy's and Copernicus's calculations of the sun's declination. The tone in which Strachan speaks of Copernicus is hardly favourable, however; he mentions in a dismissive manner Copernicus's attempts to overthrow all astronomical phenomena.

Andrew Cant refers to the celestial observations made by Galileo, Kepler, Copernicus and Tycho Brahe, and in his 1658 theses he describes the Ptolemaic, Copernican and Tychoenic world systems, but declares himself a Ptolemaic.

George Meldrum's 1659 theses are on similar lines.

Meldrum refers to the observations made by Copernicus, Lansberg, Tycho Brahe, Longomontanus and Peurbach, and indeed he seems to accept Copernicus's calculations; he praises Copernicus's method of explaining planetary movement without having recourse to epicycles. His description of the universe, however, is still geocentric.

The first theses to accept a modern explanation of the universe are Alexander Alexander's (Marischal, 1669). Alexander adopts the Cartesian vortex theory as representing a position halfway between the Ptolemaic and the Copernican. Even more enthusiastic about the vortex theory is George Middleton (King's, 1675), and it is also accepted by John Buchan (King's, 1681), who shows his appreciation of the invention of the telescope by listing the planetary phenomena which have been observed with its help, viz. 21 new stars, the distance between Jupiter and the earth, the phases of Saturn and Venus, sunspots, etc. James Lorimer (Marischal, 1683), George Skene (King's, 1688 and 1696) and Alexander Moir (Marischal, 1691) all set out the vortex theory too.

A lone voice against Copernican/Cartesian theories is heard in the theses of Robert Forbes (1684) where he states that "rather than give up the Copernican/Cartesian hypothesis about the world system and the earth's movement, its supporters prefer to claim that God is lying, and that the Holy Scriptures speak in accordance with vulgar misconceptions."

Thomas Burnet's (Marischal, 1686) position is not clearly stated, but given the anti-Cartesianism of the rest of his physics theses, he is probably not in favour of the vortex theory. Among



the questions he poses at the end of his theses are the following:  
 "Is the Cartesian vortex theory possible? Is it the earth or the sun that has an annual movement?"

George Peacock (Marischal, 1693) accepts the Copernican theory, "whatever Tycho, Ricciolus and others say to the contrary." Peacock is particularly enthusiastic about the recent experiments carried out by Hooke, which show that the earth produces a considerable parallax and variety in the fixed stars by its annual orbit.

The first reference <sup>in the Aberdeen theses</sup> to Newtonian astronomical theories occurs in George Fraser's <sup>of</sup> 1692. Fraser says that Newton has shown that the vortex theory is entirely at odds with astronomical phenomena, and that movement can happen in free space without vortices. However, the mathematics of Newton's theory are too complicated for students to grasp, so for the present purpose Fraser accepts the vortex theory. In addition he refers to Newton's observations of comets, Cassini's observations of Mars, and Burnet's Sacred theory of the earth, of which he seems to approve. Alexander Fraser (King's, 1693) also rejects the vortex theory, since Newton has shown it to be false. In Black's 1705 theses he recommends Huygens as being the best investigator of heavenly phenomena, and he refers to observations made by Cassini, Flamsteed and Huygens.

William Smith (Marischal, 1700) states that the Copernican theory agrees with the phenomena and is not contradictory to reason or faith. In 1704 and 1708 he lists the planetary observations made by Kepler, Huygens and Gregory, and he also mentions the discoveries of Cassini, Bernoulli, Hevelius and

Tycho Brahe.

In 1706 George Fraser still upholds the Cartesian vortex theory, but he refers to Huygens's and Kepler's planetary observations, and also to the account of comets given by Halley. In the last three theses that we possess for our period, those of James Urquhart (King's, 1710), Peacock (Marischal, 1711) and William Smith (Marischal, 1712), the positions adopted are entirely Newtonian.

The St. Andrews lectures are completely Ptolemaic in their outlook until 1661. The lecture notes taken down by Colin Campbell in that year<sup>1</sup> contain an account of eight different world systems - those of Aristotle, the Peripatetics, Ptolemy, Alphonsius, Clavius, Copernicus, Trapella and Tycho Brahe. The modern views are rejected, and Listorpius and Hainline are cited in support of the regent's refutation of Copernicus. In 1664 John Hay and David Falconer describe the Copernican and Tychonic systems in addition to the Ptolemaic;<sup>2</sup> it is not clear which theory they support, since the part of the manuscript where their views may be expressed is very faded.

Alexander Grant's notes of 1682<sup>3</sup> and James Martin's of 1684<sup>4</sup> are also incomplete, so we do not know which of the three systems they favoured. Probably it was the Copernican, since their physics lectures are Cartesian and even express some Newtonian ideas.

Gregory compares the Ptolemaic, Copernican and Tychonic systems in 1690<sup>5</sup> and concludes that the Copernican is the most likely, since it is the simplest and explains the movements of

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1. EUL - Colin Campbell Collection

2. St.A - Ms.36032

3. St.A - Ms.36225

4. EUL - Dc.8.15

5. St.A - Ms.36224



the sun and the fixed stars; it is especially satisfactory on the movement of Mars, Jupiter and Saturn. He divides the objections against the Copernican hypothesis into three categories: (a) physical, (b) astronomical and (c) scriptural, which he answers in turn. At the end of his lectures is an appendix on gravity and on the movement of tides.

At the beginning of the century in the theses we find a statement by William Wedderburn in 1608 that "there is no reason why anyone who relies on Aristotle's authority should carp at eccentrics, orbs and epicycles." The first reference to Copernicus that we have occurs in William Lamb's theses for 1613, where he mentions Copernicus's observations of the movements which can be seen in the celestial orbs. John Wedderburn's 1629 theses comment on the numerous astronomical hypotheses that exist, among them the Copernican; they merely show us that we can have no knowledge of astronomical matters, and our only course is to marvel at God's wonders. Mungo Murray (St. Leonard's, 1634) mentions Copernicus, but not his heliocentric theory; he says that there is only a single movement of the eighth heaven, and consequently there is no room for the movement of fixed stars from west to east, as Ptolemy relates, or for the Alphonsine trepidation, or for the Copernican twin libration. William Campbell (St. Salvator's, 1657) still accepts the geocentric system; he speaks with derision of Copernicus's theory and claims that Kepler's measurements of the earth prove that it is too large for Copernicus's theory to be correct; also unacceptable is the speed at which the earth rotates according to Copernicus's theories.

With Robert Hamilton's theses of 1668 (St. Salvator's)

the Copernican system gains acceptance, and Hamilton voices his support for the Cartesian vortex theory. He defends the Copernican theory against the charge of being contrary to the scriptures by stating that the scriptures do not describe things as they really are, but only as they appear to our senses.

As might be expected from the general Cartesianism of their theses, Sanders, Grant, Cockburn and Monro also accept the vortex theory. In addition Sanders refers to observations made by Huygens, Cassini, Flamsteed and Wallis (for the last mentioned he gives a reference to the Philosophical Transactions, no.16). According to Sanders the Cartesian is the only hypothesis which solves all the celestial phenomena satisfactorily; like Hamilton, Sanders feels it necessary to claim that the new theory is not opposed to the scriptures. He states that the task of the scriptures is not to make men scientists or mathematicians, but to help them to grace and salvation. Referring to the Inquisition which condemned Galileo, Sanders maintains that the charges brought against Galileo could have had no grounding in the scriptures.

Gregory (St.Salvator's, 1690) gives a Newtonian explanation of planetary movements, and describes the theory of centripetal force. He refers to the observations made by Cassini on the satellite of Mars and accounts for comets. His students are recommended to study Jessop's recently written Propositiones hydrostaticae ad illustrandum Aristarchi Samii systema for an account of Descartes's position. Gregory is very scornful about the vortex theory, claiming that it is totally at odds with astronomical phenomena, and does not so much explain heavenly



movements as confound the whole issue.

Scrimgeour's 1697 theses and Craigie's 1703 theses are equally Newtonian, though they concentrate less on physics than Gregory does. Craigie points out that Newton's physics show how much nature is hidden from us; Newton is able to show how celestial movement is governed by centrifugal and centripetal force, but he is unable to define the nature of heavenly bodies. Craigie thinks that Huygens is merely inventing when he philosophizes about life on other planets. Craigie's fellow regent at St. Salvator's, Thomas Forrester, still accepts the vortex theory in 1703.

Turning to the library lists we find that Edinburgh, Marischal College and St. Leonard's College were all fortunate enough to receive good collections of books on astronomy in donation.

Edinburgh's bequest came from James Douglas, secretary to James VI, in 1635 and included: Clavii Opera, Peurbach's Theoricae novae planetarum, Kepler's Stella nova, Dioptrice, Harmonices mundi, Prodromis dissertatum cosmographicarum, Copernicus's Astronomia instaurationis and Libri 5 de revolutionibus orbium coelestium, Tycho Brahe's Epistolae astronomicae and De aetheris recentioribus phaenomenis, and Rheticus's Opus de triangulis.

Marischal College began the century on a good footing with Duncan Liddel's bequest, received in 1613. Among the books left by Liddel were: Copernicus's De revolutionibus, Tycho Brahe's Opera varia, Regiomontanus's Tabulae planetarum, Peurbach's Theoricae planetarum and Kepler's Dioptrics. In 1641 the College library also received Kepler's Harmonice mundi and Paralipomena sive astronomiae pars optica, Longomontanus's Astronomia Danica and further copies of Copernicus's De revolutionibus and Kepler's

i. e. the edition of De revolutionibus which was edited by Nicolaus Valerius, and published in 1617.

Dioptrics; this time the bequest came from William Johnston, the professor of mathematics, whose lectures were discussed above.

Mungo Murray, who became professor of astronomy at Gresham College, left his books to St. Leonard's College in 1670. They included: Tycho Brahe's Mechanica and other works, Longomontanus's Astronomia Danica, Copernicus's Astronomia, and Kepler's Physica coelestis and other works. In 1678 the College also received Copernicus's De revolutionibus and Hevelius's Machina coelestis, Cometographia and Selenographia, in the Wodderburn bequest.

From the 1650s onwards Edinburgh added to her collection of astronomical works. Cassendi's Institutio Astronomica was purchased in 1657 and his Lives of Copernicus and Peurbach in 1672, Kepler's Epitome Astronomicae Copernicanae in 1659, Duhamel's Astronomia physica in 1661, Borelli's De inventione telescopii in 1695, <sup>and David</sup> Gregory's Astronomiae physicae etc. elementa, Galileo's De mundi systemate and Grew's Cosmology in 1701. In addition to books £147.00 was paid for Copernicus's sphere and its case in 1685.

At Marischal College library funds were used to add to Liddel's collection, and among the books purchased were: Hevelius's Selenographia, Ricciolus's Almagest, Cassendi's complete works and Huygens's Systema Saturnium.

Gregory bought a number of astronomical works for the observatory at St. Andrews, including works by Hevelius, Kepler, Tycho Brahe and Huygens, and the 1687 library list mentions in addition works by Peurbach and Galileo's De systemate mundi.

Glasgow did not have the advantage of such a bequest as

1. This statement should be qualified, since Astronomiae physicae etc. elementa was not published until 1702. What is in fact recorded in the library lists is an advance payment made in 1701 to James Gregory for his brother's book.



the other universities received, but nevertheless she purchased Copernicus's works in the early 1650s, and Kepler's Epitome astronomiae Copernicanae in 1656. The library list for 1691 and later includes Ricciolus's Almagest, Regiomontanus in Ptolemaei Almagesten, Galileo's Dialogos de systemate mundi, Copernicus's Astronomia instaurata, and Cassendi's Lives of Tycho Brahe, Copernicus, Peurbach and Regiomontanus; and among the instruments purchased in the 1690s were such things as a meridian and a globe.

From this survey it emerges that while Copernican ideas were known to regents in the early part of the century, at any rate at Edinburgh, Aberdeen and St. Andrews, and while Aristotelian concepts of the universe were often questioned, the heliocentric system was not fully accepted until the 1660s and even then not by all the regents. This time Edinburgh does not appear to have been the first university to accept the new ideas; indeed the heliocentric system is adopted in Aberdeen and St. Andrews theses in the 1660s, and in a more qualified way in Glasgow dictates of the same period, while the first favourable reference it receives in Edinburgh is in the 1670s.

Once the regents had accepted the Copernican system, it frequently appears in their dictates and theses in its Cartesian guise. By the 1690s, however, the vortex theory was being superseded by Newtonianism, which gained more and more support, until at the beginning of the 18th century there were only a few regents who still adhered to the Cartesian cosmology.

## Chapter 7

In the preceding chapters I have inevitably touched on the effect on the Scottish universities of the political and religious upheavals of the 17th century. It is virtually impossible to discuss the university courses without reference to contemporary events, since not only were staff appointments affected, but also the content of the lectures and theses. In what follows I propose to take up the points I have made earlier and discuss them in greater detail, and also to define more precisely the nature of the relations between the six colleges.

To divide 17th century Scottish political history up into clear-cut periods of Presbyterian and Episcopalian government is of course a gross over-simplification, but as far as the political upheavals affected the universities we can distinguish three definite crisis points corresponding to changes in the form of government.

The first began in 1638/9 when the universities were purged of Episcopalian officers who refused to subscribe to the National Covenant. At Edinburgh the regents Robert Rankin and John Brown were deposed. Most of the Aberdeen doctors lost their positions, including William Leslie, who was Principal of King's College; also Alexander Scrogie, a regent at King's College. In the volumes of Robert Baillie's correspondence there is a reference to a Commission which was specifically appointed in 1638 to remove disaffected regents from Aberdeen.<sup>1</sup> Glasgow and St. Andrews seem

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1. The letters and journals of Robert Baillie (Glasgow: Bannatyne Club, 1841, 42), vol.1, pp.491-492



to have fared better, though the visitation occasioned a considerable amount of dread, in Glasgow at any rate.<sup>1</sup> We learn from Baillie again that the masters of St.Andrews originally resisted the Covenant, but soon gave way and signed.<sup>2</sup>

The signing of the Covenant marked the beginning of a period of great political unrest, and ten years later there was another mass expulsion. At King's College the Principal, William Guild, the sub-Principal, Alexander Middleton, and the regents Patrick Gordon and George Middleton were all deposed for having taken the King's side in the Civil War. At St.Leonard's College David Nevay was dismissed after having been summoned before the Presbytery for having made statements opposed to the Kirk.

With the return of an Episcopalian form of government in 1661 we come to the second of the crisis points mentioned. This time many of the Presbyterians installed by the Covenanters and their successors were expelled, and Episcopalians - in some cases the same Episcopalians who had been dismissed in the earlier purges - were put in their places. At Aberdeen, John Row, Principal of King's College, was deposed and replaced by William Rait; in 1662 Rait ceased to be Principal and Alexander Middleton, who had been deposed in 1649, was appointed. Patrick Gordon was reappointed as regent. At St.Andrews William Campbell refused to take the oath of allegiance in 1662, and James Wood, Provost of St.Salvator's, was deposed because he would not submit to episcopacy. George Sinclair, regent at Glasgow, resigned in 1666 rather than take the oath of allegiance.

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1. ibid. vol.1, p.171

2. ibid. p.62ff.

The third crisis point was in 1689 when Presbyterianism once more gained the ascendancy. A resolution was passed in 1690 to the effect that the Parliamentary Commissioners were to "take exact tryall of the Masters...Regents etc. if any of them be erroneous in doctrine, and as to popish, arminiane and sociniane principles, which is to be searched from their dictats, or to receave informations from other persons who have been conversant with them", to search their dictates for evidence of insufficiency and to ensure their loyalty to the present government.<sup>1</sup> This seems to have been the occasion for a general witch-hunt. Records of the proceedings at Edinburgh show that anyone who had a grudge against one of the regents regarded the occasion as a good opportunity to bring this out into the open.<sup>2</sup> At St.Andrews too, numerous complaints were made by the town against the colleges; the townspeople doubtless welcomed the opportunity to exact revenge for the disruptive behaviour by the students in favour of James II, which was not prevented and sometimes actually supported by the regents.<sup>3</sup>

As a result of these investigations Alexander Monro, the Principal of Edinburgh University, was deposed, together with John Strachan, the professor of divinity, and the regent Thomas Burnet. The question was raised about Andrew Massie being dismissed, but in fact he retained his position. Around this time David Gregory also left Edinburgh to become Savilian professor of astronomy at

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1. Evidence, vol.1, Appendix, pp.36-37

2. Robert K.Hannay, "The visitation of the College of Edinburgh in 1690," Book of the Old Edinburgh Club, 8 (1915), pp.79-100

3. Robert K.Hannay, "The visitation of St.Andrews University in 1690," Scottish historical review, 13 (1915-16), pp.1-15



Oxford -- possibly this departure was not entirely unconnected with the fact that Gregory's family were Episcopalian, and Gregory himself was suspected of holding atheistic views. At St. Andrews there was a great upheaval; of the eight regents belonging to the two colleges only one (John Monro, St. Leonard's) retained his position after the visitation. Glasgow saw the departure of her Principal, James Fall, and the regents James Wemyss and William Blair; John Boyd refused at first to take the oath, but changed his mind subsequently. George Sinclair, who had resigned in 1666, now returned as regent. Aberdeen alone seems to have been relatively unaffected by the 1689 Revolution; all the officers eventually took the oath at both colleges.

These three watersheds are the most obvious instances of the effect of Scotland's political upheavals on the university staff, but we have evidence that politics and religion were a constant factor in the appointment of staff throughout the 17th century, even when times were relatively peaceful. Craufurd records that in 1629 there was a debate between Laudians and Presbyterians over the appointment of a professor of theology at Edinburgh, the latter prevailing.<sup>1</sup> In 1633, also at Edinburgh, the best candidate for the professorship of humanity, Archibald, was passed over because he was "odious to the episcopal faction."<sup>2</sup> In the 1620s Robert Boyd resigned as Principal of first Glasgow, then Edinburgh, over James I's policy of imposing prelacy on Scotland.

Throughout the 17th century various acts were promulgated

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1. Craufurd, History, pp.114-115

2. *ibid.*, pp.124-125

requiring oaths of allegiance from the regents. There is an act relating to Glasgow University, dated 1623, stating that no university appointment can be held unless an oath of allegiance is sworn,<sup>1</sup> and similar acts were passed by the Visitation Commissioners in 1664 and 1680.<sup>2</sup> At St. Andrews in the 1640s it was decreed that applicants for the post of regent must bring with them testimony of allegiance to the Reformed religion, and the Synod of Fife was to certify the appointments of regents.<sup>3</sup> An act for regents' trials at Marischal College in 1650 stated that regents had henceforth to produce evidence of their blameless conversation and constant affection to the cause of God.<sup>4</sup> In 1654 Cromwell decreed that the Commissioners for visiting universities and schools of learning should take care that none but men who were godly and able, and friendly to his government, be admitted to any benefice.<sup>5</sup> The Privy Council passed an act in 1672 regulating who was allowed to teach.<sup>6</sup> During the later period of Episcopacy Edinburgh Town Council appointed four baillies to go over the college, and "ther to call for the primare and four regents of philosophie, and requyr from the saids regents the bishops testificat that they submit to and own the present government conform to the Act of Parliament, and such as sall not produce the said testificat that, conform to a former Act of Counsell, they declare their

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1. Munimenta, vol.2, p.300

2. GUA - 26637

3. Evidence, vol.3, pp.208-209

4. AUL - M.91

5. Munimenta, vol.1, pp.333-334

6. *ibid.*, pp.413-414



places vacant, and shut up their schoole doores till the Counsell give farder order."<sup>1</sup> Finally, in 1699 a sub-committee was appointed by the General Assembly to visit the colleges of Aberdeen and report on persons found erroneous, scandalous, negligent, insufficient or disaffected to the government.<sup>2</sup>

Nor did this close connection between university appointments and politics end with the 17th century. The 1715 rebellion brought a spate of purgings in its wake. At Aberdeen eight students were expelled for supporting the Jacobite uprising; the principal of King's College, George Middleton, together with the regents James Urquhart and Richard Gordon were deposed, while at Marischal College all the regents - George Peacock, Alexander Moir, William Smith and William Meston - lost their positions. Because of the known Episcopalian sympathies of her masters and students St. Andrews also received a visitation in 1718, which complained of Episcopacy in Francis Pringle, one of the regents at St. Leonard's. However, the university had anticipated trouble by applying for this visitation, and no purge took place.<sup>3</sup> Edinburgh and Glasgow were untouched, since their loyalties were to the Whig government, and it is perhaps no coincidence that it was the universities of Edinburgh and Glasgow which flourished during the 18th century, while those of Aberdeen and St. Andrews, both of which had supported the Jacobite cause, declined.<sup>4</sup>

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1. Charters, Statutes and Acts of the Town Council and the Senatus, p.135

2. Fasti Aberdonenses, p.383

3. Two students at St. Andrews, p.xlvi ff.

4. Of course this was only one factor; economic reasons and the kind of cities Edinburgh and Glasgow were played a greater role in the 18th century ascendancy of their universities.

The fact that university appointments were so dependent on the political and religious convictions of the incumbents meant that their teaching could not but be influenced also. And indeed we find evidence of the state or church trying again and again to determine what was taught. For instance, both in the 1640s and in the 1690s the Commissions decreed that logic etc. were not to be taught privately, but only in the universities; in this way they no doubt hoped to be able to have more control over the content of the teaching. In 1672 the correspondents of the universities, ever mindful of the watchful eye of church and state, agreed that "the theses of the universities at laureation shall be seen and approved by their respective faculties and he who presides in the faculty shall signify under his hand that there is nothing found in them contrary to the true religion and good manners before the theses be given to the press."<sup>1</sup> In 1695 the Parliamentary Commission demanded inspection of the regents' dictates,<sup>2</sup> and in 1699 they listed "various propositions vented among the students which are false and pernicious," and declared that the masters were to guard against them.<sup>3</sup> It is worth quoting these, as they provide us with a good indication of what it was that the Commissioners were afraid of:

1. The material world has existed from eternity.
2. Our reason or philosophy is the father of Scripture; it is the criterion according to which we judge the truth of things divine.
3. A wise man's reason is the rule for morality.

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1. AUL - M.91

2. cf. *supra* pp.54-55

3. EUL - Dc.1.4



The Commission then listed some other propositions which "are not so universally absurd, but are disapproved by the Reformed and Popish Divines," and appointed that the same should be foreborne:

1. Spirit is nowhere.
2. The essence of mind is placed in actual thought.
3. The existence of pure finite spirits (i.e. angels) can only be proved from Scripture.
4. One should doubt everything or at least suspend judgment in order to discover the truth.
5. Our clear knowledge is the best criterion of truth.
6. Animals do not have feelings but are mere automata.
7. The human soul is created indirectly.

Some propositions at first hearing are offensive and may be false, but may pass with limitations. Regarding these the Commission enjoins caution:

1. The essences of things are eternal.
2. Propositions (both of whose terms are temporal.) may be of eternal truth.
3. The possibility of things is intrinsic in them from eternity.
4. The essence of mind is that it always in fact thinks.

The distrust of Cartesianism shown here is only too obvious.

There are a number of specific instances during the 17th century when a regent's teaching was used against him. At Edinburgh in 1626 one of the city's ministers, William Struthers, spoke in derogatory terms about philosophy, describing it as "the dishclout to Divinity."<sup>1</sup> The regent James Reid used the

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1. The episode is described by Craufurd, History, pp.107-109

laureation ceremony of 1626 to reply. There were, he remarked, certain modern theologians who affected to despise liberal sciences and were not ashamed to brand philosophy with insolent and opprobrious epithets. "Whatever these persons may think of themselves who thus condemn human philosophy, such is its lustre in the Christian life and so great its benefit to civil society, that Aristippus chose rather to be a Christian philosopher than an ignorant or unphilosophic divine." This reply of Reid's led to a protracted wrangle, as a result of which Reid retired from his post as regent.

At St. Andrews James Wedderburn was accused in 1638 of "having corrupted with Arminianism diverse with his discourses and lectures,"<sup>1</sup> while in 1668 there was a row over Robert Hamilton's theses, in which he defends Hobbes, as a result of which Hamilton lost his post.<sup>2</sup>

Coutts records that John Cameron, who was Principal of Glasgow University 1622-23, came into conflict with one of the regents, Robert Blair. Cameron searched Blair's dictates and found in some passages on Aristotle's Politics that Blair gave preference to elective rather than to hereditary monarchy. Cameron communicated this to the King, who made no great account of the matter, but the Principal used his influence with the Archbishop and others to such purpose that Blair found it prudent to leave the college.<sup>3</sup> Also at Glasgow, in the 1650s, the regent Richard

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1. The letters and journals of Robert Baillie, vol.1, p.167

2. The diary of John Lamont, pp.207-208

3. James Coutts, A history of the University of Glasgow (Glasgow, 1909), pp.89-90



Robertson laid himself open to charges of Sabellianism, Nestorianism, and various kinds of blasphemy, and was compelled by the Faculty to delete the offending passages from his dictates.<sup>1</sup>

At Aberdeen Patrick Strachan of Marischal College was condemned at a meeting of the rectorial court in 1665 for issuing heterodox and profane theses.

Thomas Burnet, who had been appointed regent at Edinburgh on the strength of his 1686 Marischal College theses, was dismissed by the 1690 Visitation because of the same theses. In them Burnet had described the Reformation as a villainous rebellion, had maintained that King James II may without consent of Parliament make or nullify laws and impose taxation in Scotland, and held that Roman Catholics should be tolerated and their disabilities removed.<sup>2</sup>

Such examples would be a warning against introducing suspect subject matter into the teaching, and may go some way towards explaining the conservatism of so many of the regents, and certain recurring topics in their theses and dictates, e.g. refutations of the teaching of Hobbes and Spinoza; attacks on the Jesuits and their scholastic method of teaching; assertions of the supremacy of the Reformed Church commentaries on Aristotle. John Russell maintains that the ministers who brought about Reid's dismissal in 1626 may well have been alarmed at the direction in which university philosophers were moving and may have welcomed

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1. John D. Mackie, The University of Glasgow, 1451-1951 (Glasgow, 1954), p.112

2. James F. Kellas Johnstone, "Notes on the academic theses of Scotland," Records of the Glasgow Bibliographical Society 8 (1930), pp.81-98

this excuse to crush their modernistic tendencies. Reid had favoured some Copernican ideas in his theses. After 1627, however, there is no mention of either Copernicus or Tycho Brahe in the theses for many years.<sup>1</sup> As I mentioned in Chapter 2, this fear of state intervention may account for the circumspection seen in the letter sent by the four universities in reply to the Commissioners' proposals in 1695 for a uniform course.<sup>2</sup>

However, we should beware of placing too much emphasis on the role played by the church and state in determining what was to be taught at the universities. It would be entirely wrong to suggest that, but for the constraints imposed by the various Commissions and the fear of losing their positions, the regents would have been teaching far more advanced ideas than they were. On the one hand, there is nothing to suggest that the regents who taught Aristotle and cited scholastic commentators were other than Aristotelians, while on the other, those teachers who believed in Cartesian ideas did not cease to teach them because they were considered atheistical in some quarters. To cite only one instance of a university upholding the claims of academic integrity, we read that in 1695 the Synod of Fife complained that "pemicious tenets (were) vented in theses and dictates (in St. Andrews) tending to atheism." The rector, Alexander Pitcairn, answering for the university, admitted that the masters "shared too much in Descartes's judgment, which he himself still looked upon as heterodox." The masters, however, were "at a loss through his

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1. John F. Russell, "Cosmological teaching in the 17th century Scottish universities, part 1," Journal for the history of astronomy, 5 (1974), pp.122-132

2. cf. *supra* p.56ff.



sentiments of themselves and doctrine, it being well known that they are not such admirers of any authors as in all things to follow him, neither is it less hard to oblige them to swear to the words of the most ancient philosopher, than to confine to the opinion of any modern pretender, and that the said masters dip not any further in Cartesianism than other colleges."<sup>1</sup>. And within the dictates themselves there are many statements of the need to be tied to no one system, but to be concerned only for the truth.

It is probably fair to say, therefore, that while the university appointments were very much influenced by religion and politics in the 17th century, the curriculum and the teaching were less so, although, as we have just seen, there was constant tension between the state and church on the one hand and the universities on the other over what was to be taught in the universities.

When attempting to assess the extent to which university teaching was affected from outside, it is important to remember, too, how eager the universities were throughout the 17th century to preserve their autonomy. We have seen something of this in the way in which they evaded the recommendations of the 1640s and 1690s Commissions, and in statements such as that of St. Leonard's about the right of regents to teach what they chose. Although the other universities were not so outspoken as St. Leonard's, there are indications that they were equally concerned to retain the right to determine what they taught. Thus Edinburgh declared in 1692 that the regents had long been

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1. St. Andrews University Laminents - UY 102/11

able to teach what system of philosophy they pleased,<sup>1</sup> the implication being that they should continue to do so (incidentally, this statement supports the theory that although the Commissions influenced appointments of staff at the universities, their influence on the curriculum was not so great). Similarly, Glasgow put forward a request, albeit a tentative one, for regents to be able to teach their own philosophy.<sup>2</sup> In 1647 the universities were so concerned about interference by the General Assembly that they drew up a joint statement that "It was found expedient to communicate to the General Assembly no more of our University affairs but such as concerned religion, or that had some evident ecclesiastic relation."<sup>3</sup> When the General Assembly made a statement in 1640 to the effect that it intended to meddle only with matters ecclesiastical, Glasgow realised the importance of this, and requested that it be written into their university statutes.<sup>4</sup> The masters of St.Andrews showed similar concern at encroachments on their autonomy. Lamont records that in 1652 "A visitation of the universities (appointed by the English) satt att St.Androus; the Measters being called, did insinuate as much as that they werre not fullie satisfied with ther power."<sup>5</sup>

At Edinburgh the struggle by the university for its autonomy was on two fronts. The masters of Edinburgh had to contend with the Town Council as well as with state and church.

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1. EUL - Dc.1.4

2. Evidence, vol.2, p.271

3. Fasti Aberdonenses, p.1111

4. Quoted by Arthur Logan Turner in his Notes and extracts for a work on the history of the Scottish Universities - EUL - Gen.523-30

5. Diary of John Lamont, p.47



Hom has shown that the Town Council normally described themselves as patrons of the College and consistently showed their anxiety to retain all patronage in their own hands.<sup>1</sup> We have a record of a reassurance which was given to the Town Council in 1695 that the Parliamentary Commission was not prejudicial to their right of patronage.<sup>2</sup> The prolonged wrangle over the regent Massie's post in the 1690s gives evidence of growing tension between town and gown. Like Burnet, Massie had been charged with expressing unorthodox views in his teaching, but in Massie's case the Commission had dismissed the charges. The Town Council, however, was dissatisfied and deposed him in 1695, whereupon he was reinstated by the Commission.<sup>3</sup> Things came to a head in 1703 when William Scott petitioned for a private graduation: "The Lord Provost told the Counsell he had seen an unwarrantable act of the masters of the colledge...wherin they assert themselves ane facultie impowered by ane Chartour of Erection and appoynted Mr William Scott's magistrand classe to be privatly graduat this year, and desyred the pretended act to be read."<sup>4</sup> Resenting this attempt by the university at independence, the Town Council appointed a committee "to search the records anent what concerns the college and to report what power the magistrates and council have over the whole concerns of the College, particularly as to inputting and outputting masters and regents."<sup>5</sup> The immediate

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1. David B. Hom, A history of the chairs of Edinburgh University - EUL - Ms.Gen.1824

2. Evidence, vol.1, Appendix, p.38

3. Hannay, "The visitation of the College of Edinburgh in 1690"

4. Charters, Statutes and Acts of the Town Council and the Senatus, p.138

5. Quoted by Hom, loc. cit.

result of the conflict which followed between Town Council and masters was a marked, if transitory, tightening of Town Council control of college staff.

The universities joined forces in their struggle for autonomy against church and state, but this seems to have been the extent of their unanimity. We have already seen how attempts by the Commissioners to bring about joint university meetings frequently failed through apathy on the part of various colleges.<sup>1</sup> The frequency with which the Commissions passed resolutions throughout the 17th century calling for a good correspondence between the universities indicates their repeated failure to achieve this aim. Indeed when the 1695 Commission proposed annual meetings between the colleges, St. Salvator's was openly dubious about this, and announced its decision to await clarification of the point.<sup>2</sup>

This unwillingness of the universities to co-operate with each other is in many ways surprising. After all, they all started the 17th century with a similar education system, a legacy from Andrew Melville. Moreover, the system of teaching, the curriculum, and in broad terms the actual content of the courses, were remarkably similar in all six colleges, so much so that it is possible to speak of a comprehensive Scottish university education system in the 17th century. The aims of all the Scottish colleges were the same, i.e. to provide a practical education, which would train students for the ministry, the law, teaching and other professions.

Apart from these general similarities, there was a

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1. cf. *supra* p.56

2. Evidence, vol.3, p.219



considerable amount of movement of staff between the six colleges. Graduates of one university were frequently appointed as regents at another; for instance, Andrew Young graduated at Edinburgh in 1598, became regent at King's, and returned to Edinburgh as regent in 1601; James Ker graduated at Edinburgh in 1610 and was regent at St. Andrews until his death in 1617; John Armour graduated at Edinburgh in 1625 and became regent at St. Salvator's in 1633; Robert Norie and Robert Keith both graduated at Marischal, in 1628 and 1637 respectively, and subsequently became regents at St. Andrews; Thomas Craufurd, who was appointed regent at Edinburgh in 1625, had graduated at St. Leonard's in 1621, while Duncan Forrester, who became a regent at Edinburgh in 1638, had graduated at St. Leonard's in 1634, and so one could continue.

What is perhaps more interesting is that regents frequently transferred from one college to another. In the first half of the century the list of regents who changed college is mainly of statistical interest; it indicates which colleges were most popular and in which directions regents tended to move. Thus Andrew Young and John Strachan both moved from Aberdeen to Edinburgh; James Wright and William Tweedie moved from St. Andrews to Edinburgh. There is evidence of a considerable interchange of regents and graduates between Marischal and King's Colleges: Andrew Youngson, Patrick Sandilands and John Strachan were all regents first at Marischal and then at King's. There may have been a similar exchange of regents between the two colleges of St. Andrews, but I have been unable to find any evidence for it. Occasionally there were movements in other directions (e.g. the Aberdeen doctor, Robert Baron, was regent at St. Salvator's before

going to Marischal); but mostly the movements were in the direction of Edinburgh; this was probably not because of superior academic standards at Edinburgh, but rather because many of the regents intended to become ministers, and chances of securing a charge were greater in the capital city where the main courts of church and state met.

These trends continued in the second half of the century, but by now they are of more than just statistical interest; we can see how ideas moved from one university to another, and we also know more of the reasons for moves.

Edinburgh remained popular, especially among regents from Aberdeen and St.Andrews. Andrew Cant was a regent at Marischal before becoming Principal of Edinburgh in 1675; William Paterson came from Marischal to Edinburgh in 1667; Andrew Massie transferred from King's in 1679; Thomas Burnet was appointed regent at Edinburgh from Marischal in 1686. Gilbert Rule moved from the position of sub-Principal at King's to that of Principal at Edinburgh in 1690. Alexander Cockburn moved from St.Leonard's to Edinburgh in 1680, bringing his Cartesian ideas with him (Cartesianism was not new to Edinburgh when Cockburn came, but Cockburn was one of the first and most enthusiastic Cartesians); John Row also moved from St.Andrews to Edinburgh, and later went on to become Principal of King's College. James and David Gregory both taught at St.Andrews before moving to Edinburgh, and both were originally graduates of Marischal. The reasons for James Gregory's move, showing the ascendancy of Edinburgh over St.Andrews, have already been quoted.<sup>1.</sup>

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1. *supra* p.276



There are very few instances of moves to Glasgow by regents from other universities. I have found none in the first half of the 17th century, and only two in the second - Gershom Carmichael and John Loudon; both of them came from St. Andrews, and their dictates and theses, especially Carmichael's, introduced more progressive ideas to Glasgow's teaching.

However, these potentially unifying factors were outweighed by the many differences and causes for dissension between the universities. These were basically political and religious, and can be seen most clearly perhaps in the rivalry between Marischal and King's Colleges. Although the Aberdeen doctors came from both colleges (4 from King's and 2 from Marischal), Marischal was originally a Presbyterian foundation, while King's was Episcopalian. The religious tension can be seen in the dispute which took place over John Strachan's 1659 theses for King's, which Andrew Cant attacked for their popish positions.<sup>1</sup> The rivalry extended to student poaching; regents from both colleges went round the countryside in the summer vacation trying to attract students from the other college; this was the cause of frequent complaint and acts were passed prohibiting the practice.<sup>2</sup> Other factors beside religious ones entered into the King's-Marischal antagonism; for instance, King's resented the establishment of a second rival university at Aberdeen, especially when Marischal's library soon became far superior as a result of Duncan Liddel's and Thomas Reid's benefactions; likewise Marischal, as the younger college,

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1. Described by William Oren, A description of the chanonry, cathedral and King's College of Old Aberdeen (Aberdeen, 1830), p.307

2. of. Fasti Aberdonenses, p.236

was constantly on the defensive, especially so at the beginning of the next century in 1707 when the Copyright privilege went to King's. It is not surprising that Charles I's attempts to unite King's and Marischal in 1641 proved abortive. Nevertheless, the two colleges were aware of the advantages of a uniform course. Attempts were made to arrange a joint Marischal-King's course in 1676<sup>1</sup> and these attempts seem ultimately to have been successful.

It is possible that all the universities may have felt somewhat bitter at Edinburgh's ability to draw regents, but Glasgow in the person of Robert Baillie is the most vocal in her complaints. In 1648 Baillie complained about Edinburgh's attitude to visitations: "likely Edinburgh will not submit to (be) visited, though they have most need."<sup>2</sup> Soon after this he wrote fiercely about Edinburgh's assumption that they were entitled to get the best men from other universities for their own chairs.<sup>3</sup> Yet despite this antagonism commissioners of all four universities recommended at a meeting in 1647 that the Leges scholae et academiae Edinburgensae be given to the other three universities, since there was profit to be derived from them.<sup>4</sup>

At the end of the century the antagonism between Glasgow and Edinburgh broke out again. In 1699 Glasgow complained that "the College of Edinburgh does not keep that good correspondence that has from time to time been observed among the Universities of

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1. AUL - M.91

2. The letters and journals of Robert Baillie, vol.3, p.64

3. *ibid.* p.64

4. GUA - 26790



this kingdom;" that Edinburgh has no public examinations at the end of the year; that they do not keep magistrand class during the month of April; and that the students do not wear gowns.<sup>1</sup>

There is less evidence for antagonism between the other colleges, but according to Dalzel competitors for regents' posts in Edinburgh were not invited from Aberdeen during the Covenanting period.<sup>2</sup>

The attacks made by the universities on each other's contributions to the uniform course in the 1690s reflect their political and religious differences. Presbyterian Glasgow consistently recommended more in the way of scriptural quotations, and this aspect of her own course was criticised by the other universities. Glasgow also frequently attacked the other courses for their Cartesianism/atheism, the two terms being considered virtually synonymous, and was in turn attacked for her adherence to the old philosophy.

Although St.Andrews, Edinburgh and Aberdeen seemed to be united against Glasgow, they nevertheless differed among themselves. St.Andrews' attack on Aberdeen's special physics was particularly violent, and in 1700 the Commission attempted to reconcile differences between Aberdeen and Edinburgh about the part of special physics relating to astronomy.

Private wrangles between the masters were often, one suspects, largely due to political and religious differences. Thus Gregory spoke slightly of George Sinclair's achievements

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1. Miminata, vol.2, p.541

2. Andrew Dalzel, History of the University of Edinburgh (Edinburgh, 1862), vol.2, p.107

in hydrostatics.<sup>1</sup> This was probably prompted as much as anything by the fact that Sinclair was a Presbyterian, while the Gregorys were Episcopalian, and Gregory's father had twice been deposed from his ministerial charge by Presbyterians. The dispute between Gillespie and Baillie over the Principal's post in Glasgow, which is related from Baillie's point of view in his correspondence, had its origins more obviously in their political antagonism.

The picture of Presbyterian conservative Glasgow on the one hand, and the other three universities, which had more progressive ideas and episcopalian sympathies in varying degrees, on the other raises the frequently debated question of whether Presbyterianism or Episcopalianism was more conducive to the advance of learning. At first sight the picture I have been drawing would seem to substantiate the claims of Episcopalianism to this honour, and indeed a great number of historians hold this view. All the remarks I quoted in the opening chapter associate the backwardness of Scottish 17th century education with Presbyterianism. Trevor-Roper thinks that the only time when the universities showed any signs of advancing toward their 18th century greatness was during the Cromwellian period when, though they were not under Episcopalian jurisdiction, they were at least free from the trammels of Presbyterianism.<sup>2</sup> Kearney claims that student notebooks of the

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1. In The great and new art of weighing vanity: or a discovery of the ignorance and arrogance of the great and new artist in his pseudo-philosophical writings, by Patrick Mathers (pseud.) (Glasgow, 1672), which Gregory wrote along with William Sanders, a regent at St. Andrews, cf. James Gregory Tercentenary memorial volume, ed. Herbert W. Turnbull (London, 1939), pp. 510-513.

2. Hugh R. Trevor-Roper, "Scotland and the Puritan Revolution," p. 411ff.



Restoration period reveal an impressive concern to come to grips with the problems of the new philosophy, and that the new philosophy entered Episcopalian Aberdeen earlier than the other Scottish universities.<sup>1.</sup>

Smout too praises the achievement of Aberdeen, but thinks poorly of the teaching of the Calvinists.<sup>2.</sup>

Certainly there can be no doubt that scholarship flourished at Aberdeen at the beginning of the century. The writings of the Aberdeen doctors prove this, and the removal of the printer Edward Faban from St.Andrews to Aberdeen in 1622 shows where the centre of publication, and thus indirectly the centre of learning, was. Moreover, it was during the second period of Episcopalianism that new ideas began to appear in the dictates and theses.

There are, however, arguments on the Presbyterian side as well. Bower states that it is wrong to equate Episcopalianism with progressive thinking.<sup>3.</sup> More positively, Cant claims that the Presbyterians were more progressive than the Episcopalians in university education, quoting Andrew Melville's system of education as evidence.<sup>4.</sup> The repeal of the New Foundation by Act of Parliament in 1621 Cant sees as a backward step which, together with the return to regenting, he thinks may have been part of James I's deliberately conservative policy. Moreover, those responsible for the maintenance of old educational ideas and methods in the

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1. Hugh F.Kearney, Scholars and gentlemen, pp.154-155

2. Thomas C.Smout, A history of the Scottish people, 1560-1830, p.187

3. Alexander Bower, The history of the University of Edinburgh (Edinburgh, 1817)

4. Ronald G.Cant, "The Scottish universities in the 17th century," Aberdeen University Review, vol.43 (3), no.143 (1970), pp.223-233

universities were mainly of Episcopalian sympathies. The 1640s curriculum statements of the General Assembly are less progressive, Cant says, but at least they have the merit of being definite, whereas the Episcopalians made no such pronouncements of their educational policy.

It should also be pointed out that while Glasgow was certainly the most Presbyterian of the universities and also the most conservative, it is not altogether true to regard the two terms as synonymous. For one thing, Glasgow cannot have been entirely Presbyterian all the century, since in the visitation at the time of the Revolutionary Settlement she was purged of some of her Episcopalian masters. Moreover, Mackie notes that in the 1680s benefactors of varying politics founded bursaries at Glasgow, which would not have happened if Glasgow's Presbyterianism had been unduly pronounced.<sup>1</sup> Also, although Aberdeen, Edinburgh and St. Andrews were in general more advanced than Glasgow, individual regents at these universities (e.g. Robert Forbes of King's and

James Pillans of Edinburgh) could be every bit as conservative as the Glasgow regents.

The truth of the matter is that we should be wary of labelling either the Episcopalians or the Presbyterians the progressive party. Perhaps Presbyterian regents tended to be more hesitant about discarding the safety of Aristotle for the possible atheism of Descartes, but equally Presbyterians would be less likely than Episcopalians to accept scholastic commentaries. However, I can find very little evidence to suggest either that

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1. Mackie, The University of Glasgow, p.129



Episcopalian regents held more advanced views than Presbyterian ones, or that periods of Episcopalian rule were more conducive to the flourishing of learning.

So far I have been discussing the influence of Scottish 17th century politics and religion on the university staff and their teaching, but the students should not be forgotten. They too were involved in the political and religious disputes. When William of Orange came to the throne in 1689, the students of St. Andrews disrupted the town's celebrations.<sup>1</sup> Horn describes how at Edinburgh, on Christmas Day 1680, the students publicly burnt an effigy of the Pope, in spite of the combined resistance of the college authorities, the town guard and the regular troops. As this was at the height of the excitement over the Popish plot, and as the Duke of York, heir presumptive to the crown and a Papist, was in residence at Holyrood at the time, the Privy Council charged the students concerned with treason and closed the college.<sup>2</sup> And we have already seen how eight students were expelled from Aberdeen for supporting the Jacobite Rebellion in 1715.<sup>3</sup>

For most of the years in the 17th century we have records in one form or another of the number of students at the Scottish universities.<sup>4</sup> These tell us whether the student numbers at any one university changed during the century, and if so, how; from

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1. Hannay, "The visitation of St. Andrews University in 1690," pp. 8-9

2. Horn, A short history of the University of Edinburgh, pp. 33-34

3. cf. *supra* p. 304

4. These are set out in full in Appendix 4

them we can estimate to what extent the religious and political events of the century influenced student numbers.

The graduation theses of all the universities are usually prefaced by a list of the students taking part in the laureation ceremony, which corresponds roughly to the magistrand class of the preceding academic year.

For Edinburgh we have in addition lists of students in the bajan and magistrand classes who paid library dues; these lists cover the years from 1627 to 1696. For the years where we have both graduation theses and library records it is interesting that in nearly every case more students attended the laureation ceremony than paid their library dues.

Munimenta Alne Universitatis Glasguensis contains lists of students who gained their degrees at the end of the arts course, and also lists of matriculated students at Glasgow. From 1633 we have a breakdown of how many students were in each class, and it is immediately obvious what a discrepancy there is between the numbers in the bajan and magistrand classes. The same discrepancy is to be seen in the Edinburgh lists where dues are recorded for both bajans and magistrands. As Horn says, "the rate of student wastage in a 17th century college would have given a University Grants Committee hysterics."<sup>1</sup>

St. Andrews lacks the matriculation and graduation records which exist for the other universities - the main source of information about student numbers there has to be the graduation theses.

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1. Horn, loc. cit., p.30



For King's College we have records of students who graduated for most of the years during the 17th century, and for Marischal College we have slightly more detailed records, similar to Glasgow's. For the last 20 years of the 17th century numbers of students in all four years at Marischal are gleaned from lists of students paying chamber mails.

Horn has analysed the student statistics for Edinburgh and Glasgow, and his conclusions are worth quoting:

"Edinburgh is lucky in the preservation of records which enable us to state with reasonable accuracy the numbers of its students from its origins to the present day. Craufurd gave a figure of sixteen score as a fair average for the 1630s and the number may have reached nearly 500 in the early years of the Restoration. Dalzel records that the first-year students exceeded 100 for the first time in 1662...In many years in the second half of the 17th century less than fifty per cent - occasionally less than forty per cent - of the students who entered the College graduated at the normal time. This, of course, was due partly to...ecclesiastical troubles...On the whole it seems doubtful whether Craufurd's figure of 320 was often exceeded until we reach the Hanoverian period. For purposes of comparison it is worth mentioning that in the early 17th century Oxford and Cambridge, taken together, were graduating more than 450 men each year and matriculating another 200 to 250 who did not take degrees. In the late sixteenth and early seventeenth centuries Glasgow seems to have admitted about thirty new students a year, but this had risen by about fifty per cent in the Restoration period. As at

Edinburgh, only a fraction of the matriculated students graduated. Only five graduates appear on the official register for some years early in the 17th century, although this may be due to incomplete recording. By the Restoration twenty or thirty graduates are recorded in most years. Edinburgh, from the beginning, was graduating about 30 students each year and by the Restoration lists of fifty or sixty graduates are normal."<sup>1</sup>

Political events did not always determine student numbers. Sometimes a sharp decrease for a particular year may have been due to an outbreak of the plague. Craufurd records a number of such instances for Edinburgh: No new class entered in 1605 for fear of plague, and in 1624 and 1625 classes were greatly reduced in numbers because of the plague.<sup>2</sup>

Innes outlines the pattern of student numbers at Aberdeen during the century. He points out that it is not easy to ascertain the causes which regulate an increase or decrease of students. Sometimes a favourite regent accounts for an increase in numbers in a particular year. For instance William Black of King's College would appear to have been a popular regent; the number of students who graduated when he was regent of the magistrand class is higher than in other years (e.g. in 1694 Black graduated 42 students, whereas Alexander Fraser graduated 33 in 1693, and George Fraser graduated 29 in 1695). From 1600 to 1610 the average number of entrants at Aberdeen did not exceed 19. Before

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1. *Ibid.*, loc. cit., pp.30-31

2. Craufurd, *History*, pp.63, 93, 106



the Restoration it had increased to 30. For the decade succeeding the Restoration, the average amounted to 70. After this there was a falling off in numbers.<sup>1.</sup>

The records of St.Andrews are too scanty to enable us to draw any definite conclusions about student numbers (Cant gives an estimate of 100 students at each of the colleges during the 17th century<sup>2.</sup>), but here too we know from Croft Dickinson that a regent's popularity could determine fluctuations in student numbers from year to year. The Morice correspondence shows that in order to avoid a particular regent, or to secure some other regent, it was not unusual to remain in the bajan class for a second year. In September 1713, when the twins Kenneth and Thomas have completed their bajan year, Morice writes to their father: "I do not know whether you incline to keep them another year in the Bajane Class...If they learn Greek another year in the Bajane Class, they will fall to be in Mr.Rymer's for their Philosophy, which if you do not like, the Regent to whom they would happen in the opposite college is one Mr.Ramsay." Alexander, the twins' older brother, must have spent two years as a bajan in Francis Pringle's class.<sup>3.</sup>

From this it emerges that Edinburgh had the largest student population during the 17th century, followed by Glasgow, and then the four colleges of St.Andrews and Aberdeen. Political and religious factors probably had a considerable effect on student numbers at different times during the century (viz. the

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1. Munimenta, pp.lxiv-lxv

2. Cant, "The Scottish universities in the 17th century"

3. Two students at St.Andrews, p.xxvi

increase in numbers at Aberdeen after the Restoration), but other reasons (e.g. natural disasters, popularity of regents) must also be taken into account.



## Chapter 8

In this study I have attempted to describe in some detail Scottish university teaching in the 17th century, and in so doing to answer the questions I raised in Chapter 1, i.e. whether there was any development during this period; what was the extent and nature of the Aristotelianism contained in the dictates and theses; whether Scottish university teachers made any acknowledgement of the philosophical and scientific revolutions which were taking place in the 17th century; whether teaching was the same at Aberdeen, Edinburgh, Glasgow and St. Andrews; and how the universities were affected by the century's political and religious struggles. Before summarising the results of this study, however, I shall try to provide a yardstick for judging more precisely how progressive the Scottish universities were in the 17th century. The most obvious measure of comparison is university teaching at Oxford and Cambridge during the same period.

Opinions tend to differ widely about how advanced the education provided at Oxford and Cambridge was in the 17th century. On the one hand Hill<sup>1</sup> maintains that the English universities were still seminaries for training ministers, and were fast becoming finishing schools for the gentry. With this pro-establishment slant went a resistance to new trends in education, such as were fostered by Gresham College. Kearney's viewpoint is much the same.<sup>2</sup> Costello has shown the extent to which scholasticism was part of the curriculum at 17th century Cambridge.<sup>3</sup> Among the

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1. Christopher Hill, Intellectual origins of the English revolution (Oxford, 1965)

2. Kearney, Scholars and gentlemen

3. William J. Costello, The scholastic curriculum at early 17th century Cambridge (Cambridge, Mass., 1958)

textbooks used at Cambridge were the works of Keckermann and Burgersdijk. The student notebooks which are described by Costello contain courses whose content is similar to that found in Scottish dictates. For instance, the notebooks all agree that the object of teaching logic is to find the truth, not merely to produce quibblers; the triple operation of the mind is described, and the the predicables and predicaments are listed. The ethics notebooks are concerned with the practical science of right and wrong (Costello attributed this emphasis to the effect of the Reformation, when the Protestant found himself his own teacher and arbiter, under the Bible, in matters of conscience). Aristotle's physics predominate in the Cambridge notebooks, with large sections on Aristotle's treatment of the soul, and the type of subject discussed under the heading of physics frequently appears to belong in the category of metaphysics. Mathematics was not studied at Cambridge during the scholastic period because it was considered a mechanical study, relevant only to traders. This lack of mathematical knowledge inevitably resulted in ignorance of cosmography. Costello maintains that scholastic lectures remained in force at Cambridge until the end of the century.

However, other historians think that the teaching at Oxford and Cambridge was by no means static during the 17th century, and that there is a good deal of evidence that new ideas in philosophy and science were being taught. Curtis is of this persuasion.<sup>1</sup> He claims that the Savilian professorships of

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1. Mark H. Curtis, Oxford and Cambridge in transition, 1558-1642 (Oxford, 1959)



geometry and astronomy, established in 1619, reflected new interests and ideas. The professor of astronomy was to interpret Ptolemy's Almagest in the light of the findings of Copernicus and other recent authorities, and was also to give instruction in the practical application of astronomical knowledge, especially in geography and navigation. (Hill, on the other hand, maintains that while the establishment of the Savilian chairs represented an effort to Greshamize Oxford, the university managed to resist reform). The amount of scientific activity which took place at Wadham College in the 1650s is quoted by Curtis as further evidence of Oxford's progressiveness, and his researches into library catalogues have also led him to conclude that Oxford fostered new ideas.<sup>1</sup>

Phyllis Allen's verdict in her survey of scientific studies in the 17th century English universities<sup>2</sup> is similar to Curtis's, viz. that modern scientific studies entered the curriculum during the first half of the 17th century; their precarious position was established and consolidated in the Cromwellian and Restoration periods; and finally, though not actually popular, they were generally accepted in the age of Newton.

Support for the idea that contemporary philosophy and science were taught at Oxford and Cambridge is also given by

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1. Curtis, "Library catalogues and Tudor Oxford and Cambridge," Studies in the Renaissance 5 (1958), pp.111-120

2. Phyllis Allen, "Scientific studies in the English universities of the 17th century," Journal of the history of ideas 10 (1949), pp.219-253

Frank,<sup>1</sup> Wordsworth<sup>2</sup> and Johnson.<sup>3</sup> Frank thinks that from 1690 onwards in particular there was a great leap forward in scientific thinking, citing Waterland's students' guide of 1706 which launched his Cambridge students into Locke, Whiston and Keill in their second year, and Gregory's Astronomy and Newton's Optics in their fourth year. The book lists and curricula given by Wordsworth show that by the beginning of the 18th century Oxford and Cambridge were teaching modern studies, while Johnson has suggested that scientific studies at the universities helped spread and make acceptable new theories and knowledge about the universe.

It is difficult to decide which of these viewpoints is the correct one. Were Oxford and Cambridge reactionary institutions with little or no evidence of new ideas in their teaching? Or was there in fact a great deal of discussion of contemporary philosophical and scientific ideas? The problem is the same one with which we are faced when trying to assess the progressiveness of the Scottish universities; on the one hand the scholastic forms of teaching (disputation etc.) continued to be in force till the end of the century, and the lectures, particularly those in logic and metaphysics, tend to be organised along scholastic lines and frequently contain scholastic subject matter; on the

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1. Robert G. Frank Jr., "Science, medicine and the Universities of early modern England," Journal of the history of science, 11 (1973), pp.194-216, 239-269

2. Christopher Wordsworth, Scholae Academicae: some account of the studies at the English Universities in the 18th century (Cambridge, 1877)

3. Francis R. Johnson, Astronomical thought in Renaissance England (Baltimore, 1937)



other hand, we must take account of the steady progress from the 1660s onwards of the ideas, first of Descartes and later of Newton and other scientists. Just as with Scotland, so also with Oxford and Cambridge, I think we must conclude by giving an answer which is something of a compromise, i.e. that the universities were to a great extent tied by their traditions, and so could not innovate either in the methods or the subject matter of their teaching to the extent that Gresham College could, for instance; nevertheless, some of the university teachers showed an interest in the new philosophical and scientific developments, which they conveyed to their students in their teaching.

This conclusion still does not answer the question, however, of whether Oxford and Cambridge were more or less progressive than the Scottish universities. As we have already seen in the chapter on physics, Whiston thought that the Scottish universities were more progressive, and probably the appearance of Newtonian ideas in the dictates and theses of Aberdeen, Edinburgh and St. Andrews did predate their appearance in the curricula at Oxford and Cambridge. Newtonianism was in any case especially likely to appeal to the Scottish regents, since it required God's presence in the universe much more clearly than Cartesianism, whose mechanistic implications the regents had always feared. It is worth noting as well that Scottish undergraduates had an advantage over their English counterparts in that they at least gained some knowledge of physics in their courses, whereas at Oxford and Cambridge science was not really part of the undergraduate curriculum.

We have one small indication that an aspect of the Scottish

method of teaching was better than that used at Oxford and Cambridge: graduation theses were adopted at Harvard rather than the English quaestiones as being a more effective method of examination. Otherwise, however, the content of the courses at the Scottish universities was probably much the same as at Oxford and Cambridge.

Despite this affinity, there is no reason to suppose that what was taught at Oxford and Cambridge influenced the courses at the Scottish universities in any way. It is true that a few of the Scottish regents had been at one of the English universities (though not usually for their first degree), e.g. Robert Rankin of Edinburgh had spent two years at Cambridge, and that a considerable number of nonconformist English students attended the Scottish universities. However, during the periods of Presbyterian government at any rate, there were strong religious and political reasons as to why the Scottish universities would be unlikely to be influenced by what was happening at Oxford and Cambridge. Baillie had a low opinion of the masters at Oxford. In a letter to his relative William Spang dated 1646 he says: "I was at Oxford, the best builded and booked University in the world, but the worst provided of learned and orthodox men I know."<sup>1</sup> Earlier, in 1638, a Dr Panter, professor of divinity, had appeared before the General Assembly: "he had not sooner settled himself in his chair while he began to recommend the English method of study to our youth, to begin with the Popish schoolmen and Fathers, and to close with Protestant neoterics:

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1. The letters and journals of Robert Baillie, vol.2, p.386



a most unhappy and dangerous order."<sup>1</sup> And quite apart from this antipathy, the basic aims of English and Scottish university education were different, the latter being more designed to educate students for a profession.

The relationship between Scotland and the Netherlands (whose universities can also be used as a yardstick for judging Scotland's educational achievement in the 17th century) was quite different from that between Scotland and the English universities. We have a good deal of evidence that there was close contact between the universities, and also that the educational system obtaining in the Netherlands influenced the Scottish universities.

A large part of Baillie's correspondence is addressed to William Spang, a relative of his who was a minister at Middleburgh. Baillie is constantly asking Spang to procure books either for himself, or for Glasgow University, and the library accounts record payments to Spang for books purchased in Holland; these are mostly polemical tracts, often by Dutch writers such as Vossius, Voet, Spanheim, Rivet and Apollonius. The Edinburgh University library records show that there too books were not infrequently bought from Holland. At the time of the proposed uniform course in the 1640s Baillie wrote to Spang for a copy of the course which had been projected in Holland: "I find that 20 years ago the professors of Leyden, with the consent of the synods of Holland, have agreed on a course, to be taught both in grammar schools and colleges, which the magistrate has commanded to be everywhere but one. I pray you try at Apollonius or the school-

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1. *ibid.*, vol.1, p.148-149

master of Middleburgh, or some other, if it be so, and what that course is, which you will set down, and send over here to me in your first letter."<sup>1</sup> In 1654 Baillie wrote to Voet, wondering if any Dutch scholar could produce textbooks, so that the universities should not need to rely on scholastic ones. Voet's reply shows a strong anti-Cartesianism, and also reveals that he is opposed to metaphysics.<sup>2</sup>

There was a large number of Scottish students at the Dutch universities, chiefly at Leiden, but also at Utrecht and Franeker. Certainly it was the faculties of theology, medicine and law that attracted them, rather than the arts faculty, but nevertheless their period of study in Holland would have enabled them to become acquainted generally with the Dutch system of teaching. The letters of many of these students are preserved in the Wodrow collection.<sup>3</sup> Of the teachers in the Scottish universities, we know that Gilbert Burnet, who was appointed professor of theology at Glasgow in 1669, had studied in Holland, also Gilbert Rule, sub-Principal at King's College in 1652 and later Principal of Edinburgh. William Carstares, who succeeded Rule as Principal, had also studied in Holland, and his reorganization of Edinburgh University in 1708 was based on the Dutch universities of Utrecht and Leyden. Horn maintains that Carstares would have liked to introduce Dutch professors to the Scottish universities to raise standards, but compromised with

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1. *ibid.*, vol.3, pp.56-57

2. *ibid.*, vol.3, pp.268-270

3. Early letters of Robert Wodrow 1698-1709, ed.L.W.Sharp  
(Edinburgh: Scottish History Society, 1937)



the next best thing when the chair of physics and chemistry was founded in 1713 and he effected the appointment of James Crawford, who had been a pupil of Doerhaave.<sup>1</sup> The fixing of regents at Edinburgh was almost certainly due to the practice of the universities of the Netherlands, all of which had always had the professorial system.

These changes in the university system at Edinburgh were a step forward, but in fact Scotland's closest relations were with the more conservative of the Dutch universities. Dibon<sup>2</sup> has shown that Utrecht was the most Aristotelian of the Dutch universities in the 17th century, and that the courses at Leiden too were heavily Aristotelian. We can detect strong affinities between Scottish and Dutch university teaching in the first half of the century. The theses for disputation at Leiden described by Dibon are very similar to the Scottish graduation theses; the "modern" Aristotelians cited - Scaliger, Zabarella, Piccolomini, Toletus, Pereira, Fonseca, the Coimbra commentators - are those quoted by the Scottish regents. The Leiden ethics theses show the same blend of Nicomachean Ethics with Christianity as the Scottish ones, while at Utrecht there arose a straight alliance between ethics and law in the university teaching, which recalls the emphasis on different types of law, particularly natural law, in the Scottish dictates and theses. In both the Dutch and the Scottish universities metaphysics did not become an established

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1. Horn, A history of the chairs of Edinburgh University

2. Paul Dibon, La philosophie néerlandaise au siècle d'or.

Vol.1: L'enseignement philosophique dans les universités à l'époque précartésienne (1575-1650) (Paris, 1954)

part of the curriculum until the middle of the century, due probably to distrust of its scholastic overtones. Familiar too is the statement put out by the University of Groningen in 1651 vindicating its philosophical liberty, in which it proclaimed itself "Amicus Plato, amicus Aristoteles, amicus Cartesius, magis amica veritas." Hamilton of St. Salvator's prefaced his 1668 theses with this quotation, which is echoed in the dictates and theses of other regents.

Dutch and Scottish university education had similar practical aims. In Scotland the purpose of a university education was to produce educated men for the professions; in the Netherlands it was to form the intellectual and moral élite needed for the new country. In both countries learning was concerned not with seeking out metaphysical truths, but rather with finding rules of action.

Given these close resemblances between the Dutch and Scottish universities, it is not unlikely that Scotland derived a good deal of inspiration for her curricula from the Netherlands, as well as ideas for change in her university systems. The more general sympathies between the two countries (viz. religious affinities (Leiden was an advance post of Protestantism), trading relations, Scottish teachers in Dutch universities, and the number of books written by Scots and published in Holland) would render Scotland amenable to Dutch academic influence, and we know that Baillie specifically asked for a copy of the Dutch uniform course.

Nor was this trading of ideas necessarily confined to Aristotle. We must remember that Dibbon deals only with the first half of the century. By the 1660s Cartesianism was beginning to be taught in the Netherlands as in Scotland, and in view of the



persisting influence of Holland throughout the century (seen in Carstares's reforms at the beginning of the 18th century), there is every reason to suppose that Scotland continued to note developments at the Dutch universities, and adopt them at her own. It is perhaps not entirely coincidental that although the Dutch authorities quoted in the earlier Scottish dictates and theses (e.g. Burgersdijk, Heereboord, Voet, de Vries) tend to be conservative, the same can hardly be said of van Helmont, Swammerdam, Leeuwenhoeck and Huygens, who feature prominently in the teaching of the second part of the century.

What conclusions, then, can be drawn about the progressiveness of Scottish university teaching from this comparison of contemporary teaching at the English and Dutch universities? Regarding Oxford and Cambridge, we can say that Scotland certainly did not lag behind England, and in some respects, particularly in the introduction of Newtonian ideas, she was in advance. The yardstick provided by the Netherlands is of a different kind to that provided by Oxford and Cambridge, in that the Dutch universities influenced the Scottish ones; consequently we cannot really compare Scottish and Dutch teaching as we can Scottish and English; they are too closely intertwined for that. We can, however, claim that, although it was with the more conservative Dutch universities that the Scottish universities had the closest relations, this does not mean that Scotland was unduly tied to Aristotle. In the second half of the century new ideas began to be taught at Utrecht and Leiden, and the institutional reforms taken over by Carstares were certainly progressive.

Turning now to the questions set out in Chapter 1, I

shall summarise the conclusions which are suggested by the picture of the Scottish university arts course which the dictates, theses, library lists etc. present.

The idea that Aristotle was taught exclusively throughout the 17th century is definitely wrong. Aristotelianism and the scholastic method of teaching did indeed pervade university teaching right up to the end of the century. The lectures continued to be organised in a scholastic manner, i.e. with the views of opposing authorities set out as in a debate, the propositions put in question and answer form etc., and Aristotle's method was still being recommended in the provisions for the uniform course in the 1690s. Moreover, in logic at any rate, Aristotelian subject matter never vanished to any significant extent from the dictates and theses, though the Cartesian method is recommended from the 1670s, and it in turn is superseded by Locke's philosophy. However, this Aristotelianism existed side by side with new ideas, which became more and more evident in the last quarter of the century and at the beginning of the 18th century. In metaphysics Descartes's Cogito ergo sum and the philosophy attached to it were widely debated, and the writings of numerous other contemporary philosophers quoted. Even further removed from scholasticism towards the end of the century were the ethics dictates and theses, with their discussions of natural law, and their concentration on practical rules of morality. It is in the physics teaching most of all that we see what a great amount of contemporary thought (regarding light, colour, gravity, cosmology etc.) was being included by the turn of the century.

Even when Aristotle was predominant in the courses, the



Aristotelian authorities used by the regents are frequently 16th or 17th century commentators, who had moved away from many of the positions of early scholasticism. Moreover, the arts curriculum was constructed in such a way that, theoretically at any rate, the students should have been able to read Aristotle in the original Greek by the time they began to study philosophy. The 1640 curriculum statements make it clear that the Commissioners and the representatives of the various universities intended that this Renaissance and humanistic approach to the text of Aristotle should be the one adopted in the university courses.

Regarding the uniformity of the teaching at the Scottish universities, we have seen that, while the basic educational aims of all the universities were the same, and their courses were sufficiently similar to enable us to talk in general terms about philosophical and scientific university teaching in Scotland, there were nevertheless differences between the universities, mainly in their attitudes to new philosophies, especially the Cartesian. These differences tended to reflect political and religious differences between the universities, though we should beware of exaggerating this factor unduly.

In few other times and places can there have been so many attempts by church and state to lay down in such minute detail what was to be taught and done in the universities as there were in 17th century Scotland. Regents' appointments were greatly influenced by the century's religious and political upheavals, and this was bound to make the masters cautious about what they taught. Orthodoxy was constantly being enjoined by various commissions, and in more than one case suspect views in a regent's

teaching lost him his post. However, the universities were very concerned to retain their autonomy, and this meant that they defended their right to teach what they pleased. Sometimes they did this openly, as in some of the answers given to the recommendations of the Parliamentary Commission in the 1690s. More often they acted indirectly, e.g. by stalling over attempts to impose a uniform course upon them, and by non-attendance at joint meetings of the universities. And of course the best proof of their independence lies in the views put forward in the dictates and theses which, particularly in the 1690s, range far beyond the Peripatetic philosophy which tended to be recommended by the commissions.

What, then, is the final verdict on philosophical and scientific teaching at the Scottish universities in the 17th century? It would be a distortion of the facts to try to reverse completely the traditional low estimate of the 17th century arts course. The turbulence in politics and religion throughout the century could not have been conducive to the flourishing of scholarship. Moreover, many of the university teachers were deeply involved in their country's affairs (e.g. Robert Millie, Patrick Gillespie, Samuel Rutherford) and consequently would have been less able to devote their energies to their university duties. The greatest drawback to progress was probably the regenting system, with its lack of opportunity for specialisation. Many of the regents were undoubtedly of poor quality as teachers. In his memoirs Sir Robert Sibbald recalls his student days at Edinburgh, and mentions that Regent Tweedie's dictates were largely a depraved version of Aristotle and unpopular with his



students.<sup>1</sup> Andrew Massie is reputed to have dictated his notes rapidly, without stopping to explain points of difficulty, so that few students paid any attention to him.<sup>2</sup> Evidence that the regents sometimes regarded their dictates as a mechanical and routine part of their duties is to be found in their attempts to delegate the task of dictation to students, censured by the Town Council in an act of 1623: "that no regent in any time hereafter cause his lesson to be taught by any scholar by reading of his notes."<sup>3</sup>

However, not all the regents were undistinguished or reactionary. Hugo Murray, who was a regent at St. Leonard's in the 1620s and 1630s, and who left a good collection of books to his college, was subsequently a professor at Gresham College. The collections left by the regents Henry Scougal and John Wedderburn to their respective colleges show them to have been widely read and interested in contemporary philosophical and scientific trends. George Sinclair not only taught science at Glasgow and Edinburgh, but in the gap between his two spells as regent at Glasgow he found employment as an engineer and surveyor, and is credited with having found means to drain coal mines. In 1670 he superintended the bringing of a water supply for the first time into Edinburgh, and he measured the heights of hills by noting, with the aid of mercury, changes in atmospheric pressure. Gershom Carmichael is perhaps usually thought of

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1. Memoirs of Sir Robert Sibbald, ed. F.P.Hett (London, 1932)

2. Horn, A short history of the University of Edinburgh, p.32

3. Charters, statutes and acts of the Town Council and the Senatus, p.121

as one of the early notable 18th century philosophers who taught in Scottish universities, but he was a regent at both Glasgow and St. Andrews in the 17th century. Moreover, a good number of the other regents, while not being outstanding, nevertheless presented in their dictates and theses a very adequate survey of contemporary thought and, in physics, of contemporary experiments. In short, the philosophical and scientific teaching in Scotland underwent a considerable transformation during the 17th century; by the beginning of the 18th century students were made fully conversant with the ideas of Locke, Descartes, Newton, and a whole host of other philosophers and scientists; it only needed the transition from the regenting to the professorial system for the intellectual blossoming of the 18th century to begin in earnest.



## Appendix 1: Student notebooks

## LOGIC

## Edinburgh

Date	Regent	Student	Location
1623	John Brown	John Robertson	NLS - Ms.9381
1632-34	Robert Rankin	James Hope	EUL - Dc.8.168
1635	Andrew Stevenson	Archibald Dow	EUL-Dc.10.19
1636	Andrew Stevenson	John Boyd	GUL-Ms.Mu.30
1639	Alexander Hopburn	Robert Colt	EUL-Dc.6.53
1652-54	Thomas Craufurd	-	EUL-Dc.5.122
1660	John Wishart	Robert Kirk	EUL-Dc.8.114
1662	James Pillans	Alexander Wilson	EUL-Dc.6.6
1666	John Wishart	John Hope	GUL-Ms.Mu.41
1666	John Wishart	J.C.Campbell	GUL-Ms.Mu.54
1668	William Paterson	John Cathcart	EUL-Dc.7.90
1674	-	Alexander Stewart	EUL-Colin Campbell Collection
1674-76	John Wishart	Martin Newall	St.A-Ms.1949
1680-81	Andrew Massie	William Drummond	EUL-La.III.154
1685	Andrew Massie	James Erskine	NLS-Adv.ms. 22.7.1
1687-88	Herbert Kennedy	Henry Dum	EUL-Dc.8.132
1688	-	-	GUL-Ms.Gen.463
1689-90	Alexander Cunningham	James Hamilton	St.A-Ms.36237
1691	William Law	John Erskine	NLS-Adv.ms. 22.7.2

Date	Regent	Student	Location
1695	Herbert Kennedy	Robert Johnston	NLS-Adv.ms.22.7.5
1696	Herbert Kennedy	John Cockburn	GUL-Ms.Gen.462
1696	Herbert Kennedy	James Kennan	NLS-Adv.ms.5.2.4
1698-1700	William Law	Daniel Campbell	NLS-Ms.183
1699	William Law	Walter Ponton	GUL-Ms.Gen.464
1700	William Law	John Drysdale	GUL-Ms.Lu.39
Glasgow			
1637-43	-	Thomas Kennedy	GUL-Ms.Gen.186
1653-54	James Veitch	-	GUL-Ms.Murray Collection
1656-57	Hugh Walker and John Young	Robert Young	St.A-Ms.36230
1659-61	Andrew Burnet	Charles Erskine	NLS-Adv.ms.22.6.1
1665	William Blair	Alan Cathcart	GUL-Ms.Gen.355
1665	William Blair	Alan Cathcart	GUL-Ms.Gen.369
1665	William Blair	-	GUL-Ms.Gen.379
1667-69	-	J. Graham	GUL-Dc.8.22
1675-76	Thomas Nicholson	James Bisset	NLS-Adv.ms.5.2.2
1677	William Blair	Alexander Maxwell	GUL-Ms.Gen.10
1678-79	John Tran	Archibald Hamilton	GUL-La.III.715
1681-82	John Tran	-	GUL-Ms.Lu.227
1681-82	John Tran	Bartholomew Robertson	NLS-Ms.9383
1686	John Tran	William Blair	NLS-Ms.9384
1690	John Tran	James Gilchrist	GUL-Ms.Lu.225



Date	Regent	Student	Location
1690-91	John Tran	Hugh Campbell	GUL-Ms.Ku.214
1691	John Boyd	Robert Eccles	EUL-La.III.720
1692-93	John Law	P.Rae	EUL-De.8.18
1695	John Boyd	John Campbell	EUL-Colin Campbell Collection
1695-96	John Tran	James Campbell	GUL-Ms.Ku.224
1697	Gerschom Carmichael	John Napier	NLS-Ms.2741
1697	Gerschom Carmichael	John Napier	GUL-Ms.Gen.56
1700	John Law	Robert Sheddan	GUL-Ms.Gen.412
1702	John Tran	James Dick	EUL-De.8.57
1702	John Tran	Thomas Jamieson	GUL-Ms.Gen.78
1708	Gerschom Carmichael	Thomas Bowie	GUL-Ms.Ku.67
1708	Gerschom Carmichael	-	GUL-Ms.Gen.255
1712	John Loudon	-	GUL-Ms.Gen.406
1714-15	John Loudon	Robert Sheddan	GUL-Ms.Gen.71

## Aberdeen

1611	Patrick Dun (M)	-	AUL-113
1612-13	?David Leech (K)	Lord Balmerino	EUL-La.III.155
1663	?Patrick Sandilands (K)	Thomas Lyell	NLS-Ms.2816
1669	Patrick Sandilands (K)	James Winimm	AUL-K.208
?1670	Henry Scougal (K)	George Gordon and ?Alexander Bisset	AUL-K.157
1677	Robert Forbes (K)	?Thomas Mackenzie and Rory Mackenzie	AUL-K.235

Date	Regent	Student	Location
1688	George Peacock (M)	?Robert Gordon	AUL-M.182
1688-89	George Peacock (M)	Alexander	
		Archibald	St.A-Ms.BC.59.A8
1690	?George Peacock (M)	John Arbuthnott	NLS-Ms.9387
1691	?George Skene (K)	-	AUL-K.152
1694	George Peacock (M)	Thomas Paull	St.A-Ms.1503
1694	- (K)	Alexander	
		Abercrombie	AUL-K.109
1695	?George Peacock (M)	John Douglas	NLS-Ms.9388
1702	George Skene (K)	Thomas Ogilvie	AUL-K.154
1707	George Peacock (M)	-	AUL-M.175
1717	James Urquhart (K)	-	AUL-K.158
St.Andrews			
1643-46	James Sharp (St.L.)	Thomas Kirkton	St.A-Ms.BR.85.55
1647-48	Thomas Glegg (St.S.)	Andrew Balfour	EUL-Dc.5.45,45*
1648	Thomas Glegg (St.S.)	Thomas Ogilvie	AUL-112
1656-57	James Wemyss (St.L.)	Roger Lindsay	St.A-Ms.36238
1658-60	William Campbell (St.S.)	Colin Campbell	
			St.A-Ms.4354
1664	David Falconer and		
	John Hay (St.L.)	James Forrester	St.A-Ms.36032
1668-70	John Hay (St.L.)	Alexander Nicolson	
			EUL-La.III.722
1671	Alexander Grant (St.L.)	George Stewart	St.A-Ms.36226
1688	-	James Lyon	St.A-Ms.30315



Date	Regent	Student	Location
1694-95	John Row (St.L.?)	Patrick Bayne	St.A-Ms.172
1698-99	Alexander Scrimgeour (St.S.)		
		James Stewart	St.A-Ms.173
1698-99	Thomas Taylor (St.L.)	James Goodsire	St.A-Ms.LF.1117.c99 (1475)
1716-23	John Craigie (St.L.)	Patrick and John Craigie	St.A-Ms.167

## METAPHYSICS

## Edinburgh

1653-54	Thomas Craufurd	-	EUL-Dc.5.122
1671	John Wishart	-	EUL-Gen.698D
1672-73	James Pillans	Archibald Flint	EUL-Dc.6.4-5
1674	-	Alexander Stewart	EUL-Colin Campbell Collection
1674-76	John Wishart	Martin Newall	St.A-Ms.1949
1675	John Wishart	James Macmyth	EUL-Dc.8.27
1675	John Wishart	John Kid	EUL-Dc.5.96
1683-84	Robert Lidderdale	Lawrence Craigie	St.A-Ms.1955
1690-91	Andrew Mascie	Patrick Tullidneph	EUL-Dc.7.92
1692	Herbert Kennedy	R.Kello	EUL-Dc.8.118
1699	William Law	Walter Ponton	GUL-Ms.Gen.464
1699	William Law	Patrick Campbell	EUL-Colin Campbell Collection
1699-1700	William Law	William Haldane	nLS-Adv.ms.22.7.4
1703	Charles Erskine	Patrick Wilkie	nLS-Adv.ms.20.7.1
1705	Robert Stewart	-	GUL-Ms.Mu.44

Date	Regent	Student	Location
1705	Robert Stewart	-	GUL-Ms.Mu.33
Glasgow			
1637-43	-	Thomas Kennedy	GUL-Ms.Gen.186
1653-54	James Veitch	-	GUL-Ms.Murray Collection
1656-57	?Hugh Walker and John Young	Robert Young	St.A-Ms.36230
1659-61	Andrew Dumet	Charles Erskine	NLS-Adv.ms.22.6.5
1665	William Blair	Alan Cathcart	GUL-Ms.Gen.355
1665	William Blair	Alan Cathcart	GUL-Ms.Gen.369
1666	William Blair	-	GUL-Ms.Gen.379
1675	Thomas Nicholson	James Bisset	NLS-Adv.ms.5.2.2
1677	William Blair	Alexander Maxwell	GUL-Ms.Gen.10
1678-79	John Tran	Archibald Hamilton	EUL-La.III.715
1681	Thomas Nicholson	John Tullidoph	St.A-Ms.36239
1682	John Tran	-	GUL-Ms.Mu.227
1687	John Tran	James Hamilton	NLS-Ms.9386
1687	John Tran	James Hamilton	NLS-Ms.9385
1691	John Tran	Hugh Campbell	GUL-Ms.Mu.214
1692-93	John Law	P.Rae	EUL-Dc.8.18
1699	?John Tran	William Bowie	GUL-Ms.Gen.69
1699-1700	John Law	James Craig	GUL-Ms.Mu.49
1704	Gershom Carmichael	James Stewart	GUL-Ms.Gen.222
1708	John Law	Alexander Adam	GUL-Ms.Mu.35
?1712-13	?Gershom Carmichael	Colin McLaurin	British Museum



Date	Regent	Student	Location
<b>Aberdeen</b>			
1662	George Gordon (K)	John Barclay	NLS-Adv.ms.22.7.15
1692	?George Skene (K)	-	AUL - K.153
1692	?Thomas Ogilvie (K)	-	AUL-2092
	(Regent of Humanity)		
1694	?William Black (K)	Alexander Irvine	NLS-Adv.ms.22.7.15
1707	George Peacock (M)	-	AUL - M.175
1707-08	-	Philip Lyon	St.A-Ms.30313
1708-09	-	Patrick Lyon	St.A-Ms.30312
<b>St.Andrews</b>			
1643-46	James Sharp (St.L.)	Thomas Kirkton	St.A-Ms.BR.85.55
1649	Thomas Glegg (St.S.)	Andrew Balfour	EUL-Dc.5.45,45*
1658-60	William Campbell (St.S.)	Colin Campbell	St.A-Ms.4354
1664	David Falconer (St.L.)	Robert Sharp	EUL - La.III.723
1670	John Hay (St.L.)	Alexander Nicolson	EUL-La.III.722
1688	-	James Lyon	St.A-Ms.30315
1707	Thomas Taylor (St.L.)	John Macara	St.A-Ms.5144
1708-09	Colin Vilant (St.L.)	George Scott	St.A-Ms.5076
1710-11	John Craigie (St.L.)	George Graham	St.A-Ms.5136
1716-23	John Craigie (St.L.)	Patrick and John Craigie	St.A-Ms.167
<b>ETHICS</b>			
<b>Edinburgh</b>			
1613-14	James Reid	Alexander Henryson	NLS-Adv.ms.5.2.3

Date	Regent	Student	Location
1619-20	William King	George Livingstone	EUL-Dc.10.37
1629	John Brown	John Robertson	NLS-Ms.9381
1636	Andrew Stevenson	John Boyd	GUL-Ms.Mu.30
1636	Andrew Stevenson	Alexander Dickie	GUL-Ms.Mu.226
1639	Alexander Hepburn	Robert Colt	EUL-Dc.6.53
1648-49	Duncan Forrester	John Anderson	GUL-Ms.Mu.28
1653	Thomas Craufurd	-	EUL-Dc.5.122
1661-62	Thomas Craufurd	Alexander Burton	EUL-Dc.5.55
1671	John Wishart	-	EUL-Gen.698D
1672-73	James Pillans	Archibald Flint	EUL-Dc.6.4-5
1674-76	John Wishart	Martin Nowall	St.A-Ms.1949
1675	John Wishart	John Kid	EUL-Dc.5.96
1679-80	John Wishart	-	EUL-Gen.690D
1682	Andrew Massie	J.Drummond	EUL-Dc.5.29
1683-84	Robert Lidderdale	Lawrence Craigie	St.A-Ms.1955
1692	Herbert Kennedy	R.Kello	EUL-Dc.8.118
1693	Herbert Kennedy	Thomas Boston	NLS-Adv.ms.20.7.5
1696	William Law	R.Clark	EUL-La.III.152
1696	William Law	John Smith	EUL-Dc.8.53
1699	William Law	?Walter Panton	GUL-Ms.Gen.464
1699-1700	William Law	William Haldane	NLS-Adv.ms.22.7.4
1700	William Law	Patrick Campbell	EUL-Colin Campbell Collection
1703	Charles Erskine	Patrick Wilkie	NLS-Adv.ms.20.7.1



Date	Regent	Student	Location
Glasgow			
1637-43	-	Thomas Kennedy	GUL- <i>Ms.Gen.</i> 186
1653-54	James Veitch	-	GUL- <i>Ms.Murray</i> Collection
1656-57	?Hugh Walker and John Young	Robert Young	St.A- <i>Ms.</i> 36230
1659-61	Andrew Burnet	Charles Erskine	NLS- <i>Adv.ms.</i> 22.6.5
1665	William Blair	-	GUL- <i>Ms.Gen.</i> 379
1665	William Blair	Alan Cathcart	GUL- <i>Ms.Gen.</i> 369
1674	William Blair	Duncan Stewart	EUL-La.III.735
1675-76	Thomas Nicholson	James Bisset	NLS- <i>Adv.ms.</i> 5.2.2
1677	William Blair	Alexander Maxwell	GUL- <i>Ms.Gen.</i> 10
1681	John Tran	-	GUL- <i>Ms.Lu.</i> 227
1687	John Tran	James Hamilton	NLS- <i>Ms.</i> 9386
1693	John Tran	Hugh Campbell	GUL- <i>Ms.Lu.</i> 208
1699	?John Tran	William Bowie	GUL- <i>Ms.Gen.</i> 69
1699-1700	John Law	James Craig	GUL- <i>Ms.Lu.</i> 49
?1713-14	?Gerschon Carmichael	Colin McLaurin	British Museum
Aberdeen			
1612-13	?David Leech (K)	Lord Palmerino	EUL-La.III.155
1666	?Patrick Sandilands (K)	Thomas Lyell	NLS- <i>Ms.</i> 2316
1668	Robert Forbes (K)	?Roderick Mackenzie	GUL- <i>Ms.Lu.</i> 55
1669	?Henry Scougal (K)	?Thomas Ogilvie	AUL-K.159
1678	?Henry Scougal (K)	-	AUL-1026
n.d.	?Henry Scougal (K)	Robert Stewart	AUL-K.155
1688	George Peacock (H)	-	AUL-H.182

Date	Regent	Student	Location
1693	?George Skene (K)	-	AUL-X.153
1701	Alexander Moir (H)	William Watt	NLS-Ms.9389
1702	George Skene (K)	William Stewart	EUL-Dc.5.33
n.d.	Thomas Forbes (?)		AUL-116

## St.Andrews

1642-43	John Alexander (St.S.)	James Gmham	St.A-Ms.1476
1643-46	James Sharp (St.L.)	Thomas Kirkton	St.A-Ms.ER.85.55
1648	Thomas Glegg (St.S.)	Thomas Ogilvie	AUL-112
1649	Thomas Glegg (St.S.)	Andrew Dalfour	EUL-Dc.5.45,45 *
1658-60	William Campbell (St.S.)	Colin Campbell	St.A-Ms.4354
1664	David Falconer (St.L.)	Robert Sharp	EUL-La.III.723
1668-70	John Hay (St.L.)	Alexander Nicolson	EUL-La.III.722
1707	Thomas Taylor (St.L.)	John Macara	St.A-Ms.5144
1708-09	Colin Vilant (St.L.)	George Scott	St.A-Ms.5076
1710-11	John Craigie (St.L.)	George Graham	St.A-Ms.5136
1716-23	John Craigie (St.L.)	Patrick and John Craigie	St.A-Ms.167

## NATURAL PHILOSOPHY

## Edinburgh

1613-14	James Reid	Alexander Henryson	NLS-Adv.ms.5.2.3
1619-20	William King	George Livingstone	EUL-Dc.10.37
1629	John Brown	John Robertson	NLS-Ms.9381
1634	Robert Rankin	John Hope	GUL-Ms.Mu.184
1636	Andrew Stevenson	John Boyd	GUL-Ms.Mu.30
1636	Andrew Stevenson	Alexander Dickie	GUL-Ms.Mu.226



Date	Regent	Student	Location
1643-44	Alexander Hepburn	-	EUL-Dk.5.5 <sup>2</sup>
1648-49	Duncan Forrester	John Anderson	GUL-Ms.Mu.28
1651	James Wyman	James Robertson	EUL-Dc.8.36
1653	Thomas Craufurd	-	EUL-Dc.5.122
1660	John Wishart	Robert Kirk	EUL-Dc.8.114
1661-62	Thomas Craufurd	Alexander Durton	EUL-Dc.5.55
1662-63	?William Tweedie	J.Whitelaw	EUL-Mic.M.645
1671-72	John Wishart	-	EUL-Gen.699D
1672-73	James Pillans	Archibald Flint	EUL-Dc.6.4-5
1674-76	John Wishart	Martin Newall	St.A-Ms.1949
1679-80	John Wishart	T.Coulton	EUL-Gen.568D
1679-80	John Wishart	J.Crane	EUL-Gen.690D
1680	John Wishart	-	EUL-Dk.5.27
1682	Andrew Massie	R.Stewart	EUL-Dc.6.23
1682-83	Andrew Massie	-	EUL-Dc.5.115
1684	Robert Lidderdale	Lawrence Craigie	St.A-Ms.1955
1686,89	Herbert Kennedy	Edward Lewis	NLS-Ms.2075
1687	Alexander Cockburn	Thomas Johnston	AUL-2187
1689	Herbert Kennedy	Charles Dalyell	EUL-Dk.3.31
1690-91	Andrew Massie	Patrick Tullidaeph	EUL-Dc.7.92
1692-93	William Law	John Erskine	NLS-Adv.ms.22.7.3
1692	Herbert Kennedy	R.Kello	EUL-Dc.8.118
1693	Herbert Kennedy	Thomas Boston	NLS-Adv.ms.20.7.5
1696	William Law	John Smith	EUL-Dc.8.53
1698-99	William Scott	John Orr	EUL-La.III.717
1699-1700	William Law	William Haldane	NLS-Adv.ms.22.7.4
1700-01	William Law	Patrick Campbell	EUL-Colin Camp- bell Collection

Date	Regent	Student	Location
1701	William Law	Walter Ponton	EUL-Dc.8.43
1703	Charles Erskine	N.Montgomery	EUL-Dc.7.98
1703	Charles Erskine	Patrick Wilkie	NLS-Adv.ms.20.7.1
1704	William Law	Cadwallader Colden	EUL-Gen.71D
Glasgow			
1653-54	James Veitch	-	GUL-Ms.Murray Collection
1656-57	?Hugh Walker and John Young	Robert Young	St.A-Ms.36230
1660-61	George Sinclair	Alexander Hamilton	NLS-Ms.9382
1662-63	F -	Francis Hamilton	NLS-Ms.8491
1665	William Blair	-	GUL-Ms.Gen.379
1676	-	James Napier	NLS-Ms.2742
1678	William Blair	Alexander Maxwell	GUL-Ms.Gen.10
1681	John Tran	-	GUL-Ms.Mu.227
1681	Thomas Nicolson	John Tullideph	St.A-Ms.36239
1688	John Boyd	-	GUL-Ms.Mu.212
1687-88	?John Tran	Alexander Forsaith	GUL-Ms.Gen.34
1690	John Tran	James Gilchrist	GUL-Ms.Mu.225
1693	John Boyd	Dugald Stewart	GUL-Ms.Gen.405
1695-96	John Tran	James Adam	GUL-Ms.Mu.213
1695-96	John Tran	Robert McFarlane	GUL-Ms.Gen.417
1699	?John Tran	William Bowie	GUL-Ms.Gen.69
1699-1701	?John Tran	D.McLea	EUL-La.III.724



Date	Regent	Student	Location
Aberdeen			
1611	Patrick Dun (M)	-	AUL-113
1612-13	?David Leech (K)	Lord Palmerino	EUL-La.III.155
1619-20	- (M)	John Moir	AUL-150
1633	William Johnston (M)	James Dun	AUL-M.181
	(Professor of mathematics)		
1662	George Gordon (K)	John Barclay	NLS-Adv.ms.22.7.15
1666	?Patrick Sandilands (K)	Thomas Lyell	NLS-Ms.2816
1687	George Fraser (K)	George Gordon	AUL-K.151
1688	George Peacock (M)	-	AUL-M.182
1689	?James Gilchrist	John Gray	AUL-K.156
1691	?Alexander Moir (M)	?Lodovick Reed	AUL-M.183
1693	- (K)	-	AUL-K.153
1693	?William Seton (M)	Alexander Irvine	AUL-M.180
	? (Alexander Moir)		
1702	?William Black (K)	-	AUL-141
n.d.	(possibly 1680s, as it discusses ideas of Descartes and Malebranche)		AUL-128

## St.Andrews

1642-43	John Alexander (St.S.)	James Graham	St.A-Ms.1476
1643-46	James Sharp (St.L.)	Thomas Kirkton	St.A-Ms.BR.85.55
1647-48	George Martin (St.S.)	Alexander Murray	EUL-La.III.721
1660-61	?William Campbell (St.S.)	Colin Campbell	EUL-Colin
		Campbell Collection	
1664	David Falconer and		
	John Hay (St.L.)	James Forrester	St.A-Ms.36032

Date	Regent	Student	Location
1682-83	Alexander Grant (St.L.)	Alexander Robertson	St.A-Ms.36225
1684	James Martin (St.S.)	James Paplay	EUL-Dc.8.15
1690	?James Gregory (St.S.)	Colin Campbell	St.A-Ms.36224

Appendix 2: Graduation theses (mainly taken from Harry G.Aldis,

A list of books printed in Scotland before 1700 (Edinburgh, 1970))

Date	Præses	Aldis no.	Location
Edinburgh			
1596	G.Robertson	290	Bodleian
1599	William Craig	323	EUL-Da.Th.
1600	John Adamson	341	EUL-Da.Th.
1601	James Knox	347	EUL-Mic.P.157
1604	John Adamson	384.7	Bodleian
1605	James Knox	392	EUL-Da.Th.
1607	Andrew Young	404.5	Bodleian
1610	James Reid	426	EUL-Da.Th.
1612	William King	448	EUL-Da.Th.
1613	Andrew Young	456	EUL-La.Th.
1614	James Reid	472	EUL-Da.Th.
1615	James Fairley	482	EUL-Da.Th.
1616	William King	497	EUL-Da.Th.
1617	Andrew Young	521	EUL-Da.Th.
1618	James Reid	534	EUL-Da.Th.
1619	James Fairley	544	EUL-Da.Th.
1620	William King	561	NLS-H.38.c.30(1)



Date	Processes	Aldis no.	Location
1621	Andrew Young	581	EUL-Da.Th.
1622	James Reid	596.5	EUL-Mic.P.158
1623	James Fairley	611.5	Bodleian
1624	William King	621	NLS-Gray.1022(21)
1625	Andrew Stevenson	638	NLS-H.38.e.30(2)
1626	James Reid	649.5	EUL-Da.Th.
1627	Robert Rankin	672	EUL-Mic.P.159
1628	William King	694.5	EUL-Phot.P.8
1629	Andrew Stevenson	720	EUL-Da.Th.
1630	John Brown	742	Bodleian
1631	Robert Rankin	769	NLS-5.1693(11)
1632	Alexander Hepburn	787	Bodleian
1641	Duncan Forrester	1022	EUL-Da.Th.
1642	Thomas Craufurd	1060	EUL-Da.Th.
1643	James Wiseman	1112.	EUL-Da.Th.
1645	Duncan Forrester	1203	EUL-Da.Th.
1646	Thomas Craufurd	1241.	EUL-Da.Th.
1647	James Wiseman	1288	EUL-Da.Th.
1649	Duncan Forrester	1392	EUL-Da.Th.
1650	Thomas Craufurd	1433	EUL-Da.Th.
1659	William Tweedie	1619	EUL-Da.Th.
1660	James Pillans	1679	EUL-Da.Th.
1661	John Wishart	1721	EUL-Da.Th.
1663	William Tweedie	1763	EUL-Da.Th.
1664	James Pillans	1783	EUL-Da.Th.
1668	John Wishart	1851	EUL-Da.Th.
1669	James Pillans	1883	EUL-Da.Th.

Date	Praeses	Aldis no.	Location
1670	John Wood	1910	EUL-Da.Th.
1671	William Paterson	1933	EUL-Da.Th.
1672	John Wishart	1964	EUL-Da.Th.
1673	James Pillans	2005	EUL-Da.Th.
1674	John Wood	2021	EUL-Da.Th.
1675	William Paterson	2067	EUL-Da.Th.
1676	John Wishart	2087.3	NLS-Pt.1a.1(28)
1677	James Pillans	2110	EUL-Da.Th.
1679	William Paterson	2177	EUL-Da.Th.
1680	John Wishart	2228.5	NLS-Pt.1a.1(27)
1681	James Pillans	2312	EUL-Da.Th.
1682	Gilbert McMurdo	2361	EUL-Da.Th.
1683	Andrew Massie	2435	EUL-Da.Th.
1684	Alexander Cockburn	2495	EUL-Da.Th.
1685	Robert Lidderdale	2613	EUL-Da.Th.
1686	Herbert Kennedy	2674	EUL-Da.Th.
1687	Andrew Massie	2725	EUL-Da.Th.
1688	Alexander Cockburn	2824	EUL-Da.Th.
1690	Herbert Kennedy	3098	EUL-Da.Th.
1692	Alexander Cunningham	3628	EUL-Da.Th.
1694	Herbert Kennedy	3410	NLS-6.736(18)
1695	Andrew Massie	3511	-
1697	William Law	3723	-
1698	Herbert Kennedy	3807	-
1699	William Scott	3912	EUL-Da.Th.
1704	Charles Erskine	-	NLS-5.886(11)
1705	William Law	-	EUL-Da.Th.



Date	Praeses	Aldis no.	Location
Glasgow			
1646	James Dalrymple	1240.5	EUL-Hg.9.11
1659	Robert Erskine	1619.1	-
1663	-	1763.3	GUL-Mh20-y.17
1671	William Blair	1933.1	GUL-Mh20-y.17
1672	-	1964.5	-
1693	John Boyd	3343	NLS-1.207(1)
1699	Gerschon Carmichael	3913	NLS-1.207(2)
1698	John Law	-	GUL-Mu3-c.3
1707	Gerschon Carmichael	-	GUL-Mu3-c.3
1708	John Loudon	-	GUL-Mu21-a.26

## Aberdeen

1616	PA. Aedie (M)	498	AUL
1622	Alexander Lunan (K)	596	AUL-The.K.622
1623	James Sibbald (M)	597	AUL-The.M.623
1623	William Forbes (K)	611	AUL-The.K.623
1624	John Forbes (K)	620	AUL-The.K.624
1625	William Lesley (K)	634	AUL-The.K.625
1625	James Sibbald (M)	637	Bodleian
1626	John Lundie (K)	649	AUL-The.K.625
1626	James Sibbald (M)	650	Bodleian
1627	John Lundie (K)	670 (=665.7?)	AUL-The.K.627
1627	John Seton (M)	671	Bodleian
1629	Andrew Strachan (K)	710	-
1630	John Seton (M)	743	Bodleian
1631	Andrew Strachan (K)	765	AUL-The.K.631

Date	Prnases	Aldis no.	Location
1631	John Seton (M)	768	AUL-The.M.631
1633	David Leech (K)	815	AUL-The.K.633
1634	David Leech (K)	839	AUL-The.K.634
1634	John Seton (M)	847	Bodleian
1635	David Leech (K)	859	AUL-The.K.635
1636	David Leech (K)	872	AUL-The.K.622
1637	David Leech (K)	890	EUL-Da.Th.
1637	John Seton (M)	895	Bodleian
1638	David Leech (K)	935	AUL-The.K.638
1638	John Seton (M)	935.5	AUL
1642	-	1059	-
1643	Patrick Gordon (K)	1111	AUL-The.K.643
1643	John May (M)	1110	AUL-The.M.643
1644-45	-	1202	-
1649	Alexander Middleton (K)	1391	-
1650	-	1432	-
1654	Andrew Cant (M)	1500	NLS-1.294(2)
1656	Robert Forbes (M)	1557	AUL
1657	Alexander White (M)	1571	Bodleian
1658	Andrew Cant (M)	1586	AUL-The.K.658
1659	John Strachan (K)	1617	-
1659	George Meldrum (M)	1618	AUL-The.M.659
1660	Patrick Sandilands (K)	1677	Bodleian
1660	Robert Forbes (M)	1678	AUL-The.M.660
1665	Patrick (?) Strachan (M)	1806	-
1666	-	1824	-
1669	Alexander Alexander (M)	1870; 1882.5	AUL-The.M.669



Date	Præses	Aldis no.	Location
1673	Thomas Gmy (M)	2004	AUL
1675	George Middleton (K)	2066	EUL-Dc.Th.
1680	Robert Forbes (K)	2229	AUL-The.K.680
1681	John Buchan (K)	2311	GUL-Mu.2-1.7
1683	George Fraser (K)	2434	-
1683	James Lorimer (M)	2433.5	AUL
1684	Robert Forbes (K)	2494	NLS-5.1757(3)
1686	William Black (K)	2672	Private owner
1686	Thomas Burnet (M)	2673	AUL
1687	Robert Keith (M)	2724	Bodleian
1688	George Skene (K)	-	AUL-The.K.688
1689	George Peacock (M)	2977	Bodleian
1690	William Black (K)	3097.7	Private owner
1691	George Fraser (K)	3167	AUL-The.K.691
1691	Alexander Moir (M)	3202.7	AUL-The.M.691
1693	Alexander Fraser (K)	3297	AUL-The.K.693
1693	George Peacock (M)	3342	AUL-The.M.693
1694	William Black (K)	3409	-
1695	George Fraser (K)	3510	AUL-The.K.695
1696	George Skene (K)	3637.3	AUL-The.K.696
1697	Alexander Fraser (K)	3712	AUL-The.K.697
1697	George Peacock (M)	3710	GUL
1698	James Moir (M)	3808.3	-
1699	Alexander Moir (M)	3911	Bodleian
1700	George Skene (K)	-	-
1700	William Smith (M)	4034.5	NLS-1.207(3a)
1701	George Skene (K)	-	-

Date	Præses	Aldis no.	Location
1704	William Smith (M)	-	AUL-The.M.704
1705	William Black (K)	-	AUL-The.K.704
1706	George Fmser (K)	-	AUL-The.K.706
1708	William Smith (M)	-	AUL-The.M.708
1710	James Urquhart (K)	-	AUL-The.K.710
1711	William Black (K)	-	Glains Castle
1711	George Peacock (M)	-	NLS-Jolly.532(5)
1712	William Smith (M)	-	NLS-Jolly.532(6)

## St.Andrews

1603	D.Wilkie (St.L.)	373	EUL (missing)
1603	John Petrie (St.S.)	372.5	NLS-Ry.III.d.8
1608	William Wedderburn (St.S.)	407.5	EUL-Df.9.153(5)
1611	John Strang (St.L.)	440.5	EUL-Df.9.153(6)
1612	James Wemyss (St.L.)	448.5	NLS-1.531(6)
1613	William Lamb (St.S.)	454.5	EUL-Df.9.153(7)
1614	Andrew Bruce (St.L.)	472.5	EUL-Df.9.153(8)
1617	James Carr (St.L.)	521.5	EUL-Df.9.153(9)
1621	Robert Barron (St.S.)	-	NLS-Ry.1.7.24
1627	John Barron (St.S.)	669.5	EUL-Df.9.153(11)
1628	Hungo Murray (St.L.)	694	EUL-Df.9.153(15)
1628	Alexander Monro (St.S.)	693.5	EUL-Df.9.153(12)
1629	John Wedderburn (St.L.)	720.5	NLS-H.38.e.30(4)
1629	John Ramsay (St.S.)	701	NLS
1630	James Mercer (St.L.)	743.5	EUL-Df.9.153(13)
1631	George Wemyss (St.L.)	767.3	NLS-H.38.e.30(6)
1631	James Barclay (St.S.)	767.7	NLS-H.38.e.30(5)



Date	Præses	Aldis no.	Location
1632	James Mercer (St.L.)	786.7	NLS-H.38.e.30(8)
1632	Alexander Monro (St.S.)	786.3	NLS-H.38.e.30(7)
1634	Mungo Murmy (St.L.)	846.5	NLS-H.38.e.30(9)
1635	George Wemyss (St.L.)	865.4	NLS-H.38.e.30(10)
1635	John Armour (St.S.)	865.2	NLS-H.38.e.30(11)
1637	John Wood (St.S.)	894	-
1648	David Nevay (St.L.)	1346	EUL-Dn.Th
1657	William Campbell (St.S.)	1570.5	NLS-1.537(3)
1668	Robert Hamilton (St.S.)	1859	NLS-Rb.s.258
1674	William Sanders (St.L.)	2037	NLS-1.531(4)
1675	Alexander Cockburn (St.L.)	2068	NLS-Gmy.1022(20)
1676	Alexander Grant (St.L.)	2087.7	EUL-Df.9.138(3)
1679	Alexander Cockburn (St.L.)	2178	EUL-Df.9.138(5)
1681	J.Martin (St.S.)	2286	EUL
1686	John Monro (St.L.)	2674.6	AUL
1686	C.Kinnaird (St.S.)	2674.3	EUL
1690	James Gregory (St.S.)	3097.5	NLS-J.136.c.
1696	T.Taylor (St.L.)	3552.5	Private owner
1697	John Loudon (St.L.)	3711	NLS-F.6.d.36
1697	Alexander Scrimgeour (St.S.)	3707	EUL
1703	John Craigie (St.L.)	-	NLS-H.35.d.6
1703	Thomas Forrester (St.S.)	-	EUL-Df.9.153(20)

(For many of the theses Aldis gives more than one location. In the case of the theses which are housed in the National Library of Scotland or one of the 4 university libraries I have recorded only the copy I have consulted. Elsewhere I have given Aldis's first location.)

Appendix 3: Regents (where known) of the 4 Scottish universities during the 17th century and at the beginning of the 18th century.

A number beside the name of a regent signifies the class of which he was regent: 1-Magistrand; 2-Bachelor; 3-Senior; 4-Bajan.

## EDINBURGH

1600	William Craig	John Rae	Robert Scott	John Adamson (1)
1601	Andrew Young		James Knox (1)	John Adamson
1602	Andrew Young		James Knox	John Adamson
1603	Andrew Young		James Knox	John Adamson
1604	Andrew Young	William King	James Knox	David Munro
				John Adamson (1)
1605	Andrew Young	William King	James Knox (1)	David Munro
1606	Andrew Young	William King	James Reid (1)	David Munro
1607	Andrew Young (1)	William King	James Reid	James Fairley
1608	Andrew Young	William King	James Reid	James Fairley
1609	Andrew Young	William King	James Reid	James Fairley
1610	Andrew Young	William King	James Reid	James Fairley
1611	Andrew Young	William King	James Reid	James Fairley
1612	Andrew Young	William King (1)	James Reid	James Fairley
1613	Andrew Young (1)	William King	James Reid	James Fairley
1614	Andrew Young	William King	James Reid (1)	James Fairley
1615	Andrew Young	William King	James Reid	James Fairley (1)
1616	Andrew Young	William King (1)	James Reid	James Fairley
1617	Andrew Young (1)	William King	James Reid	James Fairley
1618	Andrew Young	William King	James Reid (1)	James Fairley
1619	Andrew Young	William King	James Reid	James Fairley (1)
1620	Andrew Young	William King (1)	James Reid	James Fairley



1621 Andrew Young (1) William King James Reid James Fairley  
 1622 Andrew Young William King James Reid (1) James Fairley  
 1623 Andrew Young William King James Reid James Fairley (1)  
 1624 Andrew Stevenson William King (1) James Reid James Fairley  
 1625 Andrew Stevenson (1) William King James Reid Robert Rankin  
 1626 Andrew Stevenson William King James Reid (1) Robert Rankin  
 1627 Andrew Stevenson William King Robert Rankin (1)  
 1628 Andrew Stevenson William King (1) Robert Rankin John Brown  
 1629 Andrew Stevenson (1) William King Robert Rankin John Brown  
 1630 Andrew Stevenson William King Robert Rankin John Brown (1)  
 1631 Andrew Stevenson Alexander Hepburn Robert Rankin (1)

John Brown

1632 Andrew Stevenson Alexander Hepburn (1) Robert Rankin

John Brown

1633 Andrew Stevenson Alexander Hepburn Robert Rankin John Brown  
 1634 Andrew Stevenson Alexander Hepburn Robert Rankin John Brown  
 1635 Andrew Stevenson Alexander Hepburn Robert Rankin John Brown  
 1636 Andrew Stevenson Alexander Hepburn Robert Rankin John Brown  
 1637 Andrew Stevenson Alexander Hepburn Robert Rankin  
 1638 Duncan Forrester Alexander Hepburn James Wiseman James Wright  
 1639 Duncan Forrester Alexander Hepburn James Wiseman James Wright  
 1640 Duncan Forrester Alexander Hepburn James Wiseman James Wright

Thomas Craufurd

1641 Duncan Forrester (1) Alexander Hepburn James Wiseman

Thomas Craufurd

1642 Duncan Forrester Alexander Hepburn James Wiseman

Thomas Craufurd (1)

1643 Duncan Forrester Alexander Hepburn James Wiseman (1)

Thomas Craufurd

1644 Duncan Forrester William Tweedie James Wiseman Thomas Craufurd

1645 Duncan Forrester (1) James Wiseman Thomas Craufurd

1646 Duncan Forrester James Wiseman Thomas Craufurd(1)

1647 Duncan Forrester Andrew Suttie James Wiseman (1)

Thomas Craufurd

1648 Duncan Forrester Andrew Suttie James Wiseman Thomas Craufurd

1649 Duncan Forrester (1) Andrew Suttie James Wiseman

Thomas Craufurd

1650 Duncan Forrester Andrew Suttie James Wiseman

Thomas Craufurd (1)

1651 James Wiseman Thomas Craufurd

1652 James Pillans James Wiseman Thomas Craufurd

1653 James Pillans John Wishart (4) James Wiseman Thomas Craufurd

1654 James Pillans John Wishart James Wiseman Thomas Craufurd (4)

1655 James Pillans John Wishart James Wiseman Thomas Craufurd

1656 James Pillans John Wishart William Forbes Thomas Craufurd

1657 James Pillans John Wishart (4) William Tweedie

Thomas Craufurd

1658 James Pillans John Wishart William Tweedie Thomas Craufurd (4)

1659 James Pillans John Wishart William Tweedie (1,4)

Thomas Craufurd

1660 James Pillans (1,4) John Wishart William Tweedie

Thomas Craufurd

1661 James Pillans John Wishart (1,4) William Tweedie

Thomas Craufurd

1662 James Pillans John Wishart William Tweedie Hugh Smith



1663 James Pillans (3) John Wishart William Tweedie Hugh Smith

1664 James Pillans (2) John Wishart (1) William Tweedie

Hugh Smith

1665 James Pillans (1) John Wishart (4) William Cunningham

George Sinclair

1666 James Pillans (4) John Wishart John Wood Andrew Ross

1667 James Pillans (3) John Wishart John Wood William Paterson (4)

1668 James Pillans (2) John Wishart (1) John Wood

William Paterson

1669 James Pillans (1) John Wishart John Wood William Paterson

1670 James Pillans (4) John Wishart John Wood William Paterson (1)

1671 James Pillans (3) John Wishart John Wood William Paterson

1672 James Pillans (2) John Wishart (1) John Wood William Paterson

1673 James Pillans (1) John Wishart (4) John Wood William Paterson

1674 James Pillans (4) John Wishart (3) John Wood William Paterson

1675 James Pillans (3) John Wishart (2) John Wood William Paterson

1676 James Pillans (2) John Wishart (1) John Wood William Paterson

1677 James Pillans (1) John Wishart (4) John Wood William Paterson

1678 James Pillans (4) John Wishart (3) John Wood William Paterson

1679 James Pillans (3) John Wishart (2) Gilbert McMurdo

Andrew Massie

1680 James Pillans (2) John Wishart (1) Gilbert McMurdo (3)

Andrew Massie (4)

1681 James Pillans (1) Alexander Cockburn (4) Gilbert McMurdo (2)

Andrew Massie (3)

1682 Robert Lidderdale (4) Alexander Cockburn (3)

Gilbert McMurdo (1) Andrew Massie (2)

- 1683 Robert Lidderdale (3) Alexander Cockburn (2)  
Gilbert McMurdo (4) Andrew Massie (1)
- 1684 Robert Lidderdale (2) Alexander Cockburn (1)  
Herbert Kennedy (3) Andrew Massie (4)
- 1685 Robert Lidderdale (1) Alexander Cockburn (4)  
Herbert Kennedy (2) Andrew Massie (3)
- 1686 Robert Lidderdale (4) Alexander Cockburn (3)  
Thomas Burnet Herbert Kennedy (1) Andrew Massie (2)
- 1687 Thomas Burnet (3) Alexander Cockburn (2) Herbert Kennedy (4)  
Andrew Massie (1)
- 1688 Thomas Burnet (2) Alexander Cockburn (1) Herbert Kennedy (3)  
Andrew Massie (4)
- 1689 William Law (1) Alexander Cunningham (4) Herbert Kennedy (2)  
Andrew Massie (3)
- 1690 William Law (4) Alexander Cunningham (3) Herbert Kennedy (1)  
Andrew Massie (2)
- 1691 William Law (3) Alexander Cunningham (2) Herbert Kennedy (4)  
Andrew Massie (1)
- 1692 William Law (2) Alexander Cunningham (1) Herbert Kennedy (3)  
Andrew Massie (4)
- 1693 William Law (1) Alexander Cunningham (4) Herbert Kennedy (2)  
Andrew Massie (3)
- 1694 William Law (4) William Scott (3) Herbert Kennedy (1)  
Andrew Massie (2)
- 1695 William Law (3) William Scott (2) John Row (4)  
Andrew Massie (1)
- 1696 William Law (2) William Scott (1) John Row (3)  
Andrew Massie (4)



1697	William Law (1)	William Scott (4)	John Row (2)	
				Andrew Massie (3)
1698	William Law (4)	William Scott (3)	John Row (1)	
				Andrew Massie (2)
1699	William Law (3)	William Scott (2)		Charles Erskine (1)
1700	William Law (2)	William Scott (1)		Charles Erskine (4)
1701	William Law (1)	William Scott (4)		Charles Erskine (3)
1702	William Law (4)	William Scott (3)		Charles Erskine (2)
1703	William Law (3)	William Scott (2)		Charles Erskine (1)
1704	William Law			Charles Erskine
1705	William Law			Charles Erskine
1706	William Law			Charles Erskine
1707	William Law			Colin Drummond

The preceding lists of regents have been worked out from the following sources:

Headings of graduation theses

Town Council records of appointments and demissions

Library lists of dues paid at matriculation and laureation

Histories of the university, in particular Craufurd's

Occasionally discrepancies occur between these different records; if in doubt I have not assigned any particular class to a regent in a given year.

## GLASGOW

1600 John Cameron Archibald Hamilton  
 1601 Archibald Hamilton Michael Wallas  
 1602 Archibald Hamilton Michael Wallas Robert Scott  
 1603 Archibald Hamilton Michael Wallas  
 1604 Walter Whiteford Archibald Hamilton Michael Wallas  
 1605 Walter Whiteford Archibald Hamilton Michael Wallas  
 Gabriel Maxwell  
 1606 Walter Whiteford Archibald Hamilton Michael Wallas  
 Gabriel Maxwell  
 1607 Walter Whiteford Archibald Hamilton Michael Wallas  
 Gabriel Maxwell  
 1608 Walter Whiteford Archibald Hamilton Michael Wallas  
 Gabriel Maxwell  
 1609 Theodore Hay William Elair  
 1610 Alexander Boyd David Dickson  
 1611 Alexander Boyd David Dickson  
 1612 Alexander Boyd David Dickson  
 1613 Alexander Boyd David Dickson  
 1614 Alexander Boyd David Dickson James Sharp  
 1615 Alexander Boyd David Dickson Robert Elair  
 1616 Alexander Boyd David Dickson Robert Elair Gavin Forsyth  
 1617 Alexander Boyd David Dickson  
 1618 Alexander Boyd  
 1619 Alexander Boyd George Young  
 1620 George Young  
 1621 George Young  
 1622 George Young



1623		George Young	John Rae	
1624		George Young	John Rae	
1625		George Young	John Rae	
1626	Robert Baillie	George Young	John Rae	
1627	Robert Baillie	George Young	John Rae	
1628	Robert Baillie	George Young	John Rae	William Wilkie
1629	Robert Baillie	George Young	John Rae	William Wilkie
1630	Robert Baillie	George Young	John Rae	William Wilkie
1631	James Forsyth			
1632-34	I have been unable to find any records of regents			
1635	Robert Mayne	Patrick Maxwell		
1636	Robert Mayne	Patrick Maxwell		
1637		Patrick Maxwell	David Munro	
1638			David Munro	
1639	John Dickson		David Munro	
1640	John Dickson	David Forsyth	David Munro	
1641	John Dickson	David Forsyth	David Munro	James Dalrymple
	William Semple (possibly one of these was regent of humanity)			
1642	John Dickson	David Forsyth	David Munro	James Dalrymple
	William Semple			
1643	John Dickson	David Forsyth	David Munro	James Dalrymple
	William Semple			
1644	John Dickson	David Forsyth	David Munro	James Dalrymple
	William Semple			
1645	John Dickson	David Forsyth	David Munro	James Dalrymple
	John Young			
1646	John Dickson	Hugh Benning	David Munro	James Dalrymple (1)
	John Young			

1647	John Dickson	David Munro	John Kilpatrick	John Young
1648	William Strang			John Young
1649	Richard Robertson			John Young
1650	Richard Robertson	James Veitch		John Young
1651	Richard Robertson	James Veitch	Patrick Young	John Young
1652		James Veitch	Patrick Young	John Young
1653	Robert McWard	James Veitch	Patrick Young	Andrew Burnet
1654	George Sinclair	James Veitch	Patrick Young	Andrew Burnet
1655	George Sinclair			Andrew Burnet
1656	George Sinclair	Robert Erskine		Andrew Burnet
1657	George Sinclair	Robert Erskine		Andrew Burnet
1658	George Sinclair	Robert Erskine		Andrew Burnet
1659	George Sinclair (1)	Robert Erskine		
1660	George Sinclair	Robert Erskine		
1661	George Sinclair	Robert Erskine		
1662	George Sinclair	Robert Erskine	William Blair	Walter Forsyth
1663	George Sinclair		William Blair	Walter Forsyth
1664	George Sinclair		William Blair	Walter Forsyth
1665	George Sinclair		William Blair	Walter Forsyth
1666	Thomas Nicholson		William Blair	Walter Forsyth
1667	Thomas Nicholson		William Blair	Walter Forsyth
1668	Thomas Nicholson		William Blair	Walter Forsyth
1669	Thomas Nicholson	John Tran	William Blair	Walter Forsyth
	William Wright			
1670	Thomas Nicholson	John Tran	William Blair	Walter Forsyth
1671		John Tran (4)	William Blair (1)	
				Walter Forsyth
1672	John Boyd	John Tran	William Blair	



1673	John Boyd	John Tran	William Blair	
1674	John Boyd	John Tran	William Blair	
1675	John Boyd	John Tran	William Blair	
1676	John Boyd	John Tran	William Blair	
1677	John Boyd	John Tran	William Blair	
1678	John Boyd	John Tran	William Blair	
1679	John Boyd	John Tran	William Blair	
1680	John Boyd	John Tran	William Blair	
1681	John Boyd	John Tran	William Blair	
1682	John Boyd	John Tran	William Blair	Thomas Gordon
	James Young			
1683	John Boyd	John Tran	William Blair	Thomas Gordon
1684	John Boyd	John Tran	William Blair	Thomas Gordon
1685	John Boyd	John Tran	William Blair	Thomas Gordon
1686	John Boyd	John Tran	William Blair	Thomas Gordon
1687	John Boyd	John Tran	William Blair	Thomas Gordon
1688	John Boyd	John Tran	William Blair	Thomas Gordon
1689	John Boyd	John Tran	William Blair	George Sinclair
1690	John Boyd	John Tran		
1691	John Boyd (3)	John Tran (2)	John Law (4)	James Knibloe (1)
1692	John Boyd (2)	John Tran (1)	John Law (3)	James Knibloe (4)
1693	John Boyd (1)	John Tran (4)	John Law (2)	James Knibloe (3)
1694	John Boyd (4)	John Tran (3)	John Law (1)	
			Gerschon Carmichael (2)	
1695	John Boyd (3)	John Tran (2)	John Law (4)	
			Gerschon Carmichael (1)	
1696	John Boyd (2)	John Tran (1)	John Law (3)	
			Gerschon Carmichael (4)	

- 1697 John Boyd (1) John Tran (4) John Law (2)  
Gerschom Carmichael (3)
- 1698 John Boyd (4) John Tran (3) John Law (1)  
Gerschom Carmichael (2)
- 1699 John Boyd (3) John Tran (2) John Law (4)  
Gerschom Carmichael (1)
- 1700 John Loudon (2) John Tran (1) John Law (3)  
Gerschom Carmichael (4)
- 1701 John Loudon (1) John Tran (4) John Law (2)  
Gerschom Carmichael (3)
- 1702 John Loudon (4) John Tran (3) John Law (1)  
Gerschom Carmichael (2)
- 1703 John Loudon (3) John Tran (2) John Law (4)  
Gerschom Carmichael (1)
- 1704 John Loudon (2) John Tran (1) John Law (3)  
Gerschom Carmichael (4)
- 1705 John Loudon (1) Alexander Dunlop (4) John Law (2)  
Gerschom Carmichael (3)
- 1706 John Loudon (2) Alexander Dunlop (4) John Law (1)  
Gerschom Carmichael (2)
- 1707 John Loudon (2) Alexander Dunlop (4) John Law (3)  
Gerschom Carmichael (1)
- 1708 John Loudon (1) Alexander Dunlop (4) John Law (2)  
Gerschom Carmichael (3)
- 1709 John Loudon (3) Alexander Dunlop (4) John Law (1)  
Gerschom Carmichael (2)
- 1710 John Loudon (2) Alexander Dunlop (4) John Law (3)  
Gerschom Carmichael (1)



- 1711 John Loudon (1) Alexander Dunlop (4) John Law (2)  
Gerschom Carmichael (3)
- 1712 John Loudon (3) Alexander Dunlop (4) John Law (1)  
Gerschom Carmichael (2)
- 1713 John Loudon (2) Alexander Dunlop (4) John Law (3)  
Gerschom Carmichael (1)
- 1714 John Loudon (1) Alexander Dunlop (4) John Law (2)  
Gerschom Carmichael (3)
- 1715 John Loudon (3) Alexander Dunlop (4) Robert Dick (1)  
Gerschom Carmichael (2)
- 1716 John Loudon (2) Alexander Dunlop (4) Robert Dick (3)  
Gerschom Carmichael (1)
- 1717 John Loudon (1) Alexander Dunlop (4) Robert Dick (2)  
Gerschom Carmichael (3)
- 1718 John Loudon (3) Alexander Dunlop (4) Robert Dick (1)  
Gerschom Carmichael (2)
- 1719 John Loudon (2) Alexander Dunlop (4) Robert Dick (1)  
Gerschom Carmichael (1)
- 1720 John Loudon (1) Alexander Dunlop (4) Robert Dick (2)  
Gerschom Carmichael (3)
- 1721 John Loudon (3) Alexander Dunlop (4) Robert Dick (1)  
Gerschom Carmichael (2)
- 1722 John Loudon (2) Alexander Dunlop (4) Robert Dick (3)  
Gerschom Carmichael (1)
- 1723 John Loudon (1) Alexander Dunlop (4) Robert Dick (2)  
Gerschom Carmichael (3)
- 1724 John Loudon (3) Alexander Dunlop (4) Robert Dick (1)  
Gerschom Carmichael (2)

1725 John Loudon (2) Alexander Dunlop (4) Robert Dick (3)

Gerschon Carmichael (1)

1726 John Loudon (1) Alexander Dunlop (4) Robert Dick (2)

Gerschon Carmichael (3)

The preceding lists of regents have been worked out from the following sources:

Munimenta Alne Universitatis Glasguensis

Glasgow University Archives

Histories of the University

The terminus ad quem for the list of regents for both Edinburgh and Glasgow is the year before the regenting gave way to the professorial system in each university. For Aberdeen and St. Andrews I have taken as the terminus ad quem the last year for which I have listed dictates or theses in Appendices 1 and 2

ABERDEEN

King's College

1600 John Chalmer (1)

1601 John Chalmer (3) Andrew Young and Gilbert Keith (4)

John Strachan (1)

1602-03 John Chalmer (2) Gilbert Keith (3) John Strachan (4)

Patrick Guthrie (1)

1603-04 John Chalmer (1) Gilbert Keith (2) John Strachan (3)

Patrick Guthrie (4)

1604-05 John Chalmer (4) Gilbert Keith (1) John Strachan (2)

Patrick Guthrie (5)



- 1605-06 John Chalmer (3) Gilbert Keith (4) John Strachan (1)  
Patrick Guthrie (2)
- 1606-07 John Chalmer (2) Gilbert Keith (3) John Strachan (4)  
Patrick Guthrie (1)
- 1607-08 John Chalmer (1) Gilbert Keith (2) John Strachan (3)  
Patrick Guthrie (4)
- 1608-09 John Chalmer (4) Gilbert Keith (1) John Strachan (2)  
Patrick Guthrie (3)
- 1609-10 John Chalmer (3) Gilbert Keith (4) John Strachan (1)  
Patrick Guthrie (2)
- 1610-11 P.Reid and Robert Dunbar (4) Gilbert Keith (3)  
James Rait (2) Patrick Guthrie (1)
- 1611-12 Robert Dunbar (3) Gilbert Keith (2) James Rait (1)  
Patrick Guthrie (4)
- 1612-13 Robert Dunbar (2) Gilbert Keith (1) James Rait (4)  
Patrick Guthrie (3)
- 1613-14 Robert Dunbar (1) William Forbes (4) James Rait (3)  
Patrick Guthrie (2)
- 1614-15 Robert Dunbar (4) William Forbes (3) James Rait (2)  
Patrick Guthrie (1)
- 1615-16 Robert Dunbar (3) William Forbes (2) James Rait (1)  
Patrick Guthrie (4)
- 1616-17 Robert Dunbar (2) William Forbes (1) James Rait (4)  
Patrick Guthrie (3)
- 1617-18 William Leslie (4) William Forbes (1) John Forbes (3)  
Patrick Guthrie (2)
- 1618-19 William Leslie (3) William Forbes and Alexander Luman (4)  
John Forbes (2) Patrick Guthrie (1)

- 1619-20 William Leslie (2) William Forbes (4) John Forbes (1)  
Alexander Luman (3)
- 1620-21 William Leslie (1) William Forbes (3) John Forbes (4)  
Alexander Luman (2)
- 1621-22 William Leslie (4) William Forbes (2) John Forbes (3)  
Alexander Luman (1)
- 1622-23 William Leslie (3) William Forbes (1) John Forbes (2)  
Alexander Luman (4)
- 1623-24 William Leslie (2) P.Forbes (4) John Forbes (1)  
Alexander Luman (3)
- 1624-25 William Leslie (1) P.Forbes (3) John Forbes (4)  
Alexander Luman (2)
- 1625-26 William Leslie (4) John Lundie (1)
- 1626-27 William Leslie (3) John Lundie (4) John Lundie (1)
- 1627-28 William Leslie (2) John Lundie (3) G.Leith (4)  
David Leech (1)
- 1628-29 William Leslie (2) Andrew Strachan (1) G.Leith (3)  
David Leech (4)
- 1629-30 William Leslie (2) Andrew Strachan (1) G.Leith (3)  
David Leech (4)
- 1630-31 William Leslie (2) Andrew Strachan (1) G.Leith (3)  
David Leech (4)
- 1631-32 William Leslie (2) Andrew Strachan (1) G.Leith (3)  
David Leech (4)
- 1632-33 G.Leith (4) David Leech (1)
- 1633-34 Robert Ogilvie (4) Alexander Middleton (2) David Leech (1)
- 1634-35 Robert Ogilvie (4) Alexander Middleton (2) David Leech (1)  
William Strachan (3)



- 1635-36 Robert Ogilvie (4) Alexander Middleton (2) David Leech (1)  
A.Gardyne (3)
- 1636-37 Robert Ogilvie (4) Alexander Middleton (2) David Leech (1)  
A.Gardyne (3)
- 1637-38 Robert Ogilvie and Alexander Middleton (4) David Leech  
and Robert Ogilvie (1) Alexander Middleton and A.Scrogie (2)  
A.Gardyne (3)
- 1638-39 Robert Ogilvie (1) Alexander Middleton (4) A.Scrogie (2)  
A.Gardyne (3)
- 1639-40 Robert Ogilvie (1) Alexander Middleton (4) A.Gardyne (3)  
A.Gardyne and A.Scrogie (2)
- 1640-41 Robert Ogilvie (1) Alexander Middleton (4) A.Gardyne (3)  
Patrick Gordon (2)
- 1641-42 W.Rait (3) Alexander Middleton (1) A.Gardyne (4)  
Patrick Gordon (2)
- 1642-43 George Middleton (2) Alexander Middleton (4) A.Gardyne (3)  
Patrick Gordon (1)
- 1643-44 George Middleton (1) Alexander Middleton (3) A.Gardyne (2)  
Patrick Gordon (4)
- 1644-45 George Middleton (4) Alexander Middleton (2)  
Andrew Youngson (1) Patrick Gordon (3)
- 1645-46 George Middleton (3) Alexander Middleton (1)  
Andrew Youngson (4) Patrick Gordon (2)
- 1646-47 George Middleton (2) Alexander Middleton (3)  
Patrick Sandilands (4) Patrick Gordon (1)
- 1647-48 George Middleton (1) Alexander Middleton (2)  
Patrick Sandilands (3) Patrick Gordon (4)

- 1648-49 George Middleton (4) Alexander Middleton (1)  
Patrick Sandilands (2) Patrick Gordon (3)
- 1649-50 George Middleton (3) Alexander Middleton (4)  
Patrick Sandilands (1) Patrick Gordon (2)
- 1650-51 Gilbert Rule (2) Alexander Middleton (3)  
Patrick Sandilands (4) John Strachan (1)
- 1651-52 Gilbert Rule (1) Alexander Middleton (2)  
Patrick Sandilands (3) John Strachan (4)
- 1652-53 Gilbert Rule (1) Hugh Anderson (2) John Strachan (3)  
Patrick Sandilands (4)
- 1653-54 Gilbert Rule (4) Hugh Anderson (1) John Strachan (2)  
Patrick Sandilands (3)
- 1654-55 Gilbert Rule (3) Hugh Anderson (4) John Strachan (1)  
Patrick Sandilands (2)
- 1655-56 Gilbert Rule (2) Hugh Anderson (3) John Strachan (4)  
Patrick Sandilands (1)
- 1656-57 Gilbert Rule (1) Andrew Massie (2) John Strachan (3)  
Patrick Sandilands (4)
- 1657-58 William Johnston (4) Andrew Massie (1) John Strachan (2)  
Patrick Sandilands (3)
- 1658-59 William Johnston (3) Andrew Massie (4) John Strachan  
and Patrick Sandilands (1) Patrick Sandilands (2)
- 1659-60 William Johnston (2) Andrew Massie (3) George Gordon (4)  
Patrick Sandilands (1)
- 1660-61 William Johnston (1) Andrew Massie (2) George Gordon (3)  
Patrick Sandilands (4)
- 1661-62 William Johnston (4) Andrew Massie (1) George Gordon (2)  
Patrick Sandilands (3)



- 1662-63 William Johnston (3) Andrew Massie (4) George Gordon (1)  
Patrick Sandilands (2)
- 1663-64 William Johnston (2) Andrew Massie (3) Robert Forbes (1)  
Patrick Sandilands (4)
- 1664-65 William Johnston (1) Andrew Massie (2) Robert Forbes (4)  
Patrick Sandilands (3)
- 1665-66 William Johnston (4) Andrew Massie (1) Robert Forbes (3)  
Patrick Sandilands (2)
- 1666-67 William Johnston (3) Andrew Massie (4) Robert Forbes (2)  
Patrick Sandilands (1)
- 1667-68 William Johnston (2) Andrew Massie (3) Robert Forbes (1)  
Patrick Sandilands (4)
- 1668-69 William Johnston (1) Andrew Massie (2) Robert Forbes (4)  
Patrick Sandilands (3)
- 1669-70 Henry Scougal (4) Andrew Massie (1) Robert Forbes (3)  
Patrick Sandilands (2)
- 1670-71 Henry Scougal (3) Andrew Massie (4) Robert Forbes (2)  
Patrick Sandilands (1)
- 1671-72 Henry Scougal (2) Andrew Massie (3) Robert Forbes (1)  
Patrick Sandilands (4)
- 1672-73 Henry Scougal (1) Andrew Massie (2) Robert Forbes (4)  
Patrick Sandilands (3)
- 1673-74 George Garden (4) Andrew Massie (1) Robert Forbes (3)  
George Middleton (2)
- 1674-75 John Buchan (3) Andrew Massie (4) Robert Forbes (2)  
George Middleton (1)
- 1675-76 John Buchan (2) Andrew Massie (3) Robert Forbes (1)  
George Middleton (4)

- 1676-77 John Buchan (1) Andrew Massie (2) Robert Forbes (4)  
George Middleton (3)
- 1677-78 John Buchan (4) Andrew Massie (1) Robert Forbes (3)  
George Middleton (2)
- 1678-79 John Buchan (3) Andrew Massie and George Middleton (4)  
Robert Forbes (2) George Middleton (1)
- 1679-80 John Buchan (2) George Fraser (4) Robert Forbes (1)  
George Middleton (3)
- 1680-81 George Fraser (3) John Buchan (1) Robert Forbes (4)  
George Middleton (2)
- 1681-82 John Buchan (4) George Fraser (2) Robert Forbes (3)  
George Middleton (1)
- 1682-83 John Buchan (3) George Fraser (1) Robert Forbes (2)  
George Middleton (4)
- 1683-84 John Buchan (2) George Fraser (4) Robert Forbes (1)  
George Middleton (3)
- 1684-85 John Buchan (1) George Fraser (3) Robert Forbes (4)  
William Black (2)
- 1685-86 John Buchan (4) George Fraser (2) Robert Forbes (3)  
William Black (1)
- 1686-87 Alexander Fraser (3) George Fraser (1) Robert Forbes (2)  
William Black (4)
- 1687-88 Alexander Fraser (2) George Fraser (4) George Skene (1)  
William Black (3)
- 1688-89 Alexander Fraser (1) George Fraser (3) George Skene (4)  
William Black (2)
- 1689-90 Alexander Fraser (4) George Fraser (2) George Skene (3)  
William Black (1)



1690-91	Alexander Fraser (3)	George Fraser (1)	George Skene (2)	William Black (4)
1691-92	Alexander Fraser (2)	George Fraser (4)	George Skene (1)	William Black (3)
1692-93	Alexander Fraser (1)	George Fraser (3)	George Skene (4)	William Black (2)
1693-94	Alexander Fraser (4)	George Fraser (2)	George Skene (3)	William Black (1)
1694-95	Alexander Fraser (3)	George Fraser (1)	George Skene (2)	William Black (4)
1695-96	Alexander Fraser (2)	George Fraser (4)	George Skene (1)	William Black (3)
1696-97	Alexander Fraser (1)	George Fraser (3)	George Skene (4)	William Black (2)
1697-98	Alexander Fraser (4)	George Fraser (2)	George Skene (3)	William Black (1)
1698-99	Alexander Fraser (3)	George Fraser (1)	George Skene (2)	William Black (4)
1699-1700	Alexander Fraser (2)	George Fraser (4)	George Skene (1)	William Black (3)
1700-01	Alexander Fraser (4)	George Fraser (3)	George Skene (1)	William Black (2)
1701-02	Alexander Fraser (4)	George Fraser (2)	George Skene (3)	William Black (1)
1702-03	Alexander Fraser (4)	George Fraser (1)	George Skene (2)	William Black (3)
1703-04	Alexander Fraser (4)	George Fraser (3)	George Skene (1)	William Black (2)

- 1704-05 Alexander Fraser (4) George Fraser (2) George Skene (3)  
William Black (1)
- 1705-06 Alexander Fraser (4) George Fraser (1) George Skene (2)  
William Black (3)
- 1706-07 Alexander Fraser (4) George Fraser (3) George Skene (1)  
William Black (2)
- 1707-08 Alexander Fraser (4) George Fraser (2) George Skene (3)  
William Black (1)
- 1708-09 Alexander Fraser (4) George Fraser (1) George Skene and  
James Urquhart (2) William Black (3)
- 1709-10 Alexander Fraser (4) George Fraser (3) James Urquhart (1)  
William Black (2)
- 1710-11 Alexander Fraser (4) George Fraser and William Simson (2)  
James Urquhart (3) William Black (1)

The preceding lists of regents are taken from Officers and graduates of the University and King's College of Aberdeen, 1495-1860, ed.

Peter J. Anderson

Marischal

- 1599-1600 G. Gray (1)
- 1600-01 G. Gray (1)
- 1601-02 G. Gray (1) W. Forbes (3)
- 1602-03 G. Gray (1) W. Forbes (3)
- 1603-04 G. Gray (1) W. Forbes (3)
- 1604-05 G. Gray (1) W. Forbes (3)
- 1605-06 G. Gray (1) W. Forbes (3)
- 1606-07 - 1609-10 G. Gray (1) is the only known regent



- 1610-11 G.Gray (1) Patrick Dun (3)
- 1611-12 G.Gray (1)
- 1612-13 G.Gray (1) J.Ross (3)
- 1613-14 G.Gray (1) J.Ross (3)
- 1614-15 J.Ross (3)
- 1615-16 J.Ross (3) A.Aedie (1)
- 1616-17 J.Ross (3) A.Aedie (1)
- 1617-18 A.Aedie (1)
- 1618-19 A.Aedie (1)
- 1619-20 A.Massie (3) W.Ogston (2)
- 1620-21 A.Massie (3) W.Ogston (2) James Sibbald (1)
- 1621-22 A.Massie (3) W.Ogston (2) James Sibbald (1)
- 1622-23 W.Wedderburn (4) A.Massie (3) W.Ogston (2)
- James Sibbald (1)
- 1623-24 W.Wedderburn (4) A.Massie (3) W.Ogston (2)
- James Sibbald (1)
- 1624-25 W.Wedderburn (4) A.Massie (3) W.Ogston (2)
- James Sibbald (1)
- 1625-26 W.Wedderburn (4) A.Massie (3) W.Ogston (2)
- James Sibbald (1)
- 1626-27 W.Ogston (3) John Seton (1)
- 1627-28 John Seton (1)
- 1628-29 John Seton (1)
- 1629-30 John Seton (1)
- 1630-31 H.Gordon (3) John Seton (1)
- 1631-32 W.Aidie (4) H.Gordon (3) John Ray (2) John Seton (1)
- 1632-33 W.Aidie (4) H.Gordon (3) John Ray (2) John Seton (1)
- 1633-34 W.Aidie (4) John Ray (2) John Seton (1)

1634-35 W.Aidie (4) John Ray (2) John Seton (1)  
 1635-36 W.Aidie (4) W.Blackhall (3) John Ray (2) John Seton (1)  
 1636-37 W.Aidie (4) W.Blackhall (3) John Ray (2) John Seton (1)  
 1637-38 W.Aidie (4) W.Blackhall (3) John Ray (2)  
 1638-39 W.Aidie (4) W.Blackhall (3) John Ray (2)  
 1639-40 W.Aidie (4) W.Blackhall (3) John Ray (2)  
 1640-41 W.Aidie (4) W.Blackhall (3) John Ray (2)  
 1641-42 W.Aidie (4) W.Blackhall (3) John Ray (2)  
 1642-43 W.Aidie (3) Andrew Youngson (2) John Ray (1)  
 1643-44 W.Aidie (2) Andrew Youngson (1) John Ray (4)

Patrick Sandilands (3)

1644-45 J.Menzies (4) John Ray (3) Patrick Sandilands (2)  
 1645-46 J.Menzies (3) John Ray (2) Patrick Sandilands (1)  
 1646-47 J.Menzies (2) John Ray (1)  
 1647-48 J.Menzies (1) John Ray (4)  
 1648-49 Robert Forbes (4) John Ray (3) J.Chalmers (2) R.Burnet (1)  
 1649-50 Robert Forbes (3) R.Burnet (4) Andrew Cant (1)  
 1650-51 Robert Forbes (2) Andrew Cant (4)  
 1651-52 Robert Forbes (1) Andrew Cant (3) Alexander White (2)

A.Bimie (4)

1652-53 Robert Forbes (4) Andrew Cant (2) Alexander White (1)

A.Bimie (3)

1653-54 Robert Forbes (3) Andrew Cant (1) Alexander White (4)

George Meldrum (2)

1654-55 Robert Forbes (2) Andrew Cant (4) Alexander White (3)

George Meldrum (1)

1655-56 Robert Forbes (1) Andrew Cant (3) Alexander White (2)

George Meldrum (4)



- 1656-57 Robert Forbes (4) Andrew Cant (2) Alexandor White (1)  
George Meldrum (3)
- 1657-58 Robert Forbes (3) Andrew Cant (1) Alexander white (4)  
George meldrum (2)
- 1658-59 Robert Forbes (2) Andrew Cant (4) Alexander White (3)  
George Meldrum (1)
- 1659-60 Robert Forbes (1) Alexander White (2)
- 1660-61 Robert Forbes (4) Alexander White (1) W.Meldrum (2)
- 1661-62 Robert Forbes (3) Alexander White (4) W.Meldrum (1)  
G.Bannerman (2)
- 1662-63 Robert Forbes (2) W.Meldrum (4) G.Bannerman (1)
- 1663-64 Robert Forbes (1) W.Meldrum (3) G.Bannerman (4)  
T.Paterson (2)
- 1664-65 W.Paterson (4) W.Meldrum (2) G.Bannerman (3) P.Strachan (1)
- 1665-66 W.Paterson (3) G.Bannerman (2)
- 1666-67 W.Paterson (2) G.Bannerman (1) Alexander Alexander (3)
- 1667-68 Robert Paterson (1) Thomas Gray (4) R.Bruce (3)  
Alexander Alexander (2)
- 1668-69 Robert Paterson (3) Thomas Gray (4) R.Bruce (2)  
Alexander Alexander (1)
- 1669-70 Robert Paterson (2) Thomas Gray (4) R.Bruce (1)  
Alexander Alexander (3)
- 1670-71 Robert Paterson (1) Thomas Gray (3) R.Bruce (4)  
Alexander Alexander (2)
- 1671-72 Robert Paterson (4) Thomas Gray (2) R.Bruce (3)  
Alexander Alexander (1)
- 1672-73 Robert Paterson (3) Thomas Gray (1) R.Bruce (2)  
Alexander Alexander (4)

- 1673-74 Robert Paterson (2) George Peacock (4) R. Bruce (1)  
Alexander Alexander (3)
- 1674-75 Robert Paterson (1) George Peacock (3) J. Farquhar (4)  
W. Seaton (2)
- 1675-76 Robert Paterson (4) George Peacock (2) John Patton (1)  
R. Farquhar (3)
- 1676-77 Robert Paterson (3) George Peacock (1) John Patton (4)  
H. Farquhar (2)
- 1677-78 Robert Paterson (2) George Peacock (4) John Patton (3)  
R. Farquhar (1)
- 1678-79 James Lorimer (1) George Peacock (3) John Patton (2)  
R. Farquhar (4)
- 1679-80 James Lorimer (4) George Peacock (2) John Patton (1)  
R. Farquhar (3)
- 1680-81 James Lorimer (3) George Peacock (1) John Patton (4)  
R. Farquhar (2)
- 1681-82 James Lorimer (2) George Peacock (4) John Patton (3)  
Thomas Burnet (1)
- 1682-83 James Lorimer (1) George Peacock (3) A. Litster (2)  
Thomas Burnet (4)
- 1683-84 Robert Keith (4) George Peacock (2) A. Litster (1)  
Thomas Burnet (3)
- 1684-85 Robert Keith (3) George Peacock (1) A. Litster (4)  
Thomas Burnet (2)
- 1685-86 Robert Keith (2) George Peacock (4) A. Litster (3)  
Thomas Burnet (1)
- 1686-87 Robert Keith (1) George Peacock (3) A. Litster (2)  
James Koir (4)



1687-88 Robert Keith and Alexander Moir (4) George Peacock (2)

A.Litster (1) James Moir (3)

1688-89 Alexander Moir (3) George Peacock (1) A.Litster (4)

James Moir (2)

1689-90 Alexander Moir (2) George Peacock (4) A.Litster (3)

James Moir (1)

1690-91 Alexander Moir (1) George Peacock (3) A.Litster (2)

James Moir (4)

1691-92 Alexander Moir (4) George Peacock (2) A.Litster (1)

James Moir (3)

1692-93 Alexander Moir (3) George Peacock (1) A.Litster (4)

James Moir (2)

1693-94 Alexander Moir (2) George Peacock (4) William Smith (3)

James Moir (1)

1694-95 Alexander Moir (1) George Peacock (3) William Smith (2)

James Moir (4)

1695-96 Alexander Moir (4) George Peacock (2) William Smith (1)

James Moir (3)

1696-97 Alexander Moir (3) George Peacock (1) William Smith (4)

James Moir (2)

1697-98 Alexander Moir (2) George Peacock (4) William Smith (3)

James Moir (1)

1698-99 Alexander Moir (1) George Peacock (3) William Smith (2)

James Moir (4)

1699-1700 Alexander Moir (4) George Peacock (2) William Smith (1)

James Moir (3)

1700-01 Alexander Moir (3) George Peacock (1) William Smith (4)

James Moir (2)

1701-02	Alexander Moir (2)	George Peacock (4)	William Smith (3)	John Moir (1)
1702-03	Alexander Moir (1)	George Peacock (3)	William Smith (2)	John Moir (4)
1703-04	Alexander Moir (4)	George Peacock (2)	William Smith (1)	John Moir (3)
1704-05	Alexander Moir (3)	George Peacock (1)	William Smith (4)	John Moir (2)
1705-06	Alexander Moir (2)	George Peacock (4)	William Smith (3)	John Moir (1)
1706-07	Alexander Moir (1)	George Peacock (3)	William Smith (2)	John Moir (4)
1707-08	Alexander Moir (4)	George Peacock (2)	William Smith (1)	John Moir (3)
1708-09	Alexander Moir (3)	George Peacock (1)	William Smith (4)	John Moir (2)
1709-10	Alexander Moir (2)	George Peacock (4)	William Smith (3)	John Moir (1)
1710-11	Alexander Moir (1)	George Peacock (3)	William Smith (2)	John Moir (4)
1711-12	Alexander Moir (4)	George Peacock (2)	William Smith (1)	John Moir (3)

The preceding lists of regents are taken from Fasti Academiae  
Mariscallanae Aberdonensis, ed. Peter J. Anderson



## ST. ANDREWS

## St. Salvator's

1600-02 No records of regents  
 1602-03 John Petrie (1)  
 1603-07 No records of regents  
 1607-08 William Wedderburn (1)  
 1608-12 No records of regents  
 1612-13 William Lamb (1)  
 1613-20 No records of regents  
 1620-21 Robert Barron (1)  
 1621-26 No records of regents  
 1626-27 John Barron (1)  
 1627-28 Alexander Monro (1)  
 1628-29 Alexander Monro (4) John Ramsay (1)  
 1629-30 Alexander Monro (3) John Ramsay  
 1630-31 Alexander Monro (2) John Ramsay James Barclay (1)  
 1631-32 Alexander Monro (1) John Ramsay  
 1632-33 John Ramsay  
 1633-34 John Alexander John Armour  
 1634-35 John Alexander John Armour (1)  
 1635-36 John Alexander  
 1636-37 John Alexander  
 1637-38 John Alexander  
 1638-39 John Alexander  
 1639-40 John Alexander  
 1640-41 John Alexander William Tweedie  
 1641-42 John Alexander William Tweedie

1642-43 John Alexander William Tweedie  
 1643-44 William Tweedie  
 1644-46 no records of regents  
 1646-47 William Campbell  
 1647-48 William Campbell George Martin Thomas Glegg  
 1648-49 William Campbell (1) George Martin Thomas Glegg  
 1649-50 William Campbell (4) George Martin William Dillodaffe  
 1650-51 William Campbell (3) George Martin  
 1651-52 William Campbell (2) George Martin  
 1652-53 William Campbell (1) George Martin Alexander Edward  
 1653-54 William Campbell (4) George Martin David Bruce  
 1654-55 William Campbell (3) George Martin  
 1655-56 William Campbell (2) George Martin  
 1656-57 William Campbell (1) George Martin Alexander Pitcaime  
 1657-58 William Campbell (4) George Martin John Lermont  
 1658-59 William Campbell (3) George Martin  
 1659-60 William Campbell (2) George Martin  
 1660-61 William Campbell (1)  
 1661-62 Patrick Lyon (1) Robert Hamilton  
 1662-63 Andrew Bruce (1) Robert Hamilton  
 1663-64 Andrew Bruce Robert Hamilton  
 1664-65 Andrew Bruce Robert Hamilton James Raynowr (1)  
 1665-66 Robert Hamilton James Raynowr (4)  
 1666-67 Robert Hamilton James Raynowr (3)  
 1667-68 Robert Hamilton (1) James Raynowr (2)  
 1668-69 James Raynowr (1)  
 1669-77 No records of regents  
 1677-85 J. Martin is the only known regent; he was praeses for  
 the graduation theses of 1681



1685-86 Charles Kinnaird (1) James Gregory James Martin  
David McGill

1686-87 James Gregory James Martin David McGill

1687-88 James Gregory James Martin David McGill

1688-89 James Gregory James Martin David McGill

1689-90 James Gregory (1) James Martin David McGill

1690-91 No record of regents

1691-92 Alexander Munro

1692-93 Alexander Munro

1693-96 No records of regents

1696-1702 Alexander Scrimgeour is the only regent of whom we have  
any record

1702-03 Alexander Scrimgeour Thomas Forrester (1)

## St. Leonard's

1600-02 no records of regents

1602-03 Daniel Wilkie (1)

1603-10 No records of regents

1610-11 John Strong (1)

1611-12 James Wemyss (1)

1612-13 No record of regents

1613-14 Andrew Bruce (1)

1614-16 No records of regents

1616-17 James Carr (1)

1617-20 No records of regents

1620-25 John Wedderburn is the only known regent

1625-26 John Wedderburn Mungo Murray

1626-27 John Wedderburn Mungo Murray

1627-28	John Wedderburn	Mungo Murray (1)	
1628-29	John Wedderburn (1)	Mungo Murray	
1629-30	James Mercer (1)	Mungo Murray	
1630-31	James Mercer	Mungo Murray	George Wemyss (1)
1631-32	James Mercer (1)	Mungo Murray	George Wemyss
1632-33		Mungo Murray	George Wemyss
1633-34		Mungo Murray (1)	George Wemyss
1634-35			George Wemyss(1)
1635-43	No records of regents		
1643-46	James Sharp is the only known regent		
1646-47	No record of regents		
1647-48	David Nevay (1)		
1648-49	David Nevay	James Blair (1)	
1649-50	Alexander Jamieson	James Blair	
1650-51	Alexander Jamieson	James Blair	Robert Hinnyman
1651-52	Alexander Jamieson	James Blair	Robert Hinnyman
1652-53	Alexander Jamieson	James Blair	Robert Hinnyman
1653-54	Alexander Jamieson	James Blair	Robert Hinnyman
1654-55	Alexander Jamieson	James Blair	William Preston
1655-56	Alexander Jamieson	James Blair	William Preston
1656-57	Alexander Jamieson	Andrew Bruce	William Preston
1657-58	Alexander Jamieson		William Preston
1658-59	Alexander Jamieson	John Paterson	James Wemyss
1659-60	Ludovic Wemyss	John Paterson	James Wemyss
1660-61	James Wood	John Hamilton	James Wemyss
1661-62	James Sharp	John Hamilton	James Wemyss
1662-63	Walter Comry	John Hamilton	James Wemyss
1663-64	Walter Comry	John Wood	Alexander Skene David Falconer



1664-65 Alexander Skene (1) David Falconer Walter Comry

1665-66 Alexander Skene (4) David Falconer Walter Comry

James Tyrie

1666-67 Alexander Skene (3) John Hay

1667-68 Alexander Skene (2) John Hay

1668-69 Alexander Skene (1) John Hay

1669-70 Alexander Skene John Hay

1670-71 John Hay

1671-72 John Hay Alexander Grant William Sanders

1672-73 John Hay Alexander Grant William Sanders

1673-74 Alexander Grant William Sanders (1)

1674-75 Alexander Grant William Sanders Alexander Cockburn (1)

1675-76 Alexander Grant (1) Alexander Cockburn

1676-77 Alexander Grant Alexander Cockburn

1677-78 Alexander Grant Alexander Cockburn

1678-79 Alexander Grant Alexander Cockburn (1)

1679-80 Alexander Grant

1680-83 Alexander Grant is the only known regent

1683-85 No records of regents

1685-86 John Monro (1)

1687-90 John Monro is the only known regent

1690-91 John Monro Patrick Gordon

1691-92 John Monro John Craigie

1692-93 John Monro John Craigie

1693-94 John Monro John Craigie

1694-95 John Monro John Craigie John Row

1695-96 Thomas Taylor (1) John Craigie John Monro

1696-97 Thomas Taylor John Craigie John Loudon (1)

1697-98	Thomas Taylor	John Loudon	John Craigie
1698-99	Thomas Taylor	John Loudon	John Craigie
1699-1700	Thomas Taylor	John Craigie	
1700-01	Thomas Taylor	John Craigie	
1701-02	Thomas Taylor	John Craigie	
1702-03	Thomas Taylor	John Craigie (1)	
1703-04	Thomas Taylor	John Craigie (3)	
1704-05	Thomas Taylor	John Craigie (2)	
1705-06	Thomas Taylor	John Craigie (1)	
1706-07	Thomas Taylor	John Craigie (3)	
1707-08	Thomas Taylor	John Craigie (2)	
1708-09	Colin Vilant (2)	John Craigie (1)	
1709-10	Colin Vilant (1)	John Craigie (3)	
1710-11	Colin Vilant (3)	John Craigie (2)	Henry Rymer (1)
			Francis Pringle (4)
1711-12	Colin Vilant (2)	John Craigie (1)	Henry Rymer (3)
			Francis Pringle (4)
1712-13	Colin Vilant (1)	John Craigie (3)	Henry Rymer (2)
			Francis Pringle (4)
1713-14	Colin Vilant (3)	John Craigie (2)	Henry Rymer (1)
			Francis Pringle (4)
1714-15	Colin Vilant (2)	John Craigie (1)	Henry Rymer (3)
			Francis Pringle (4)
1715-16	Colin Vilant (1)	John Craigie (3)	Henry Rymer (2)
			Francis Pringle (4)

The preceding lists of regents have been compiled from the following sources: Dictates and Graduation theses; University archives; Two students at St. Andrews, ed. William Croft Dickinson; and Histories of the University.



Appendix 4: Numbers of students at the Scottish universities in  
the 17th century and at the beginning of the 18th century

EDINBURGH

1600-09	No figures
1610	26 (Graduation theses)
1611	No figures
1612	24 (Graduation theses)
1613-14	No figures
1615	34 (Graduation theses)
1616	No figures
1617	47 (Graduation theses)
1618	No figures
1619	32 (Graduation theses)
1620	36 (Graduation theses)
1621	42 (Graduation theses)
1622-23	No figures
1624	28 (Graduation theses)
1625	35 (Graduation theses)
1626	26 (Graduation theses)
1627	20 (Library dues)
1628	11 (Library dues)
1629	33 (Library dues); 36 (Graduation theses)
1630	25 (Library dues)
1631	35 (Library dues); 41 (Graduation theses)
1632	28 (Library dues); 32 (Graduation theses)
1633	23 (Library dues)
1634	30 (Library dues)
1635	37 (Library dues)

1636	24	(Library dues)
1637	38	(Library dues)
1638	24	(Library dues)
1639	31	(Library dues)
1640	28	(Library dues)
1641	21	(Library dues); 26 (Graduation theses)
1642	20	(Library dues); 26 (Graduation theses)
1643	23	(Library dues); 30 (Graduation theses)
1644	23	(Library dues)
1645	61	(Library dues); 69 (Graduation theses)
1646	34	(Library dues); 46 (Graduation theses)
1647	28	(Library dues); 30 (Graduation theses)
1648	27	(Library dues); 20 (Graduation theses)
1649	28	(Library dues); 33 (Graduation theses)
1650	35	(Library dues); 42 (Graduation theses)
1651	13	(Library dues)
1652	19	(Library dues)

Up to 1652 the figures have all related to the magistrand class.

From 1653 onwards we have figures for both magistrand and bayan classes.

1653	27 (1); 34 (4)	(Library dues)
1654	16 (1); 51 (4)	(Library dues)
1655	30 (1); 58 (4)	(Library dues)
1656	24 (1); 53 (4)	(Library dues)
1657	30 (1); 79 (4)	(Library dues)
1658	51 (1); 86 (4)	(Library dues)
1659	36 (1); 77 (4)	(Library dues); 45 (Graduation theses)
1660	39 (1); 70 (4)	(Library dues); 44 (Graduation theses)



- 1661 43 (1); 89 (4) (Library dues); 50 (Graduation theses)
- 1662 42 (1); 89 (4) (Library dues)
- 1663 55 (1); 89 (4) (Library dues); 71 (Graduation theses)
- 1664 45 (1); 84 (4) (Library dues); 50 (Graduation theses)
- 1665 56 (1); 96 (4) (Library dues)
- 1666 52 (1); 78 (4) (Library dues)
- 1667 41 (1); 103 (4) (Library dues)
- 1668 58 (1); 114 (4) (Library dues); 68 (Graduation theses)
- 1669 39 (1); No figures for bajan year (Library dues); 45 (Theses)
- 1670 46 (1); 115 (4) (Library dues); 53 (Graduation theses)
- 1671 42 (1); 63 (4) (Library dues); 54 (Graduation theses)
- 1672 46 (1); 87 (4) (Library dues); 53 (Graduation theses)
- 1673 47 (1); 112 (4) (Library dues); 44 (Graduation theses)
- 1674 45 (1); 93 (4) (Library dues); 47 (Graduation theses)
- 1675 38 (1); 55 (4) (Library dues); 64 (Graduation theses)
- 1676 59 (1); 126 (4) (Library dues); 70 (Graduation theses)
- 1677 19 (1); 95 (4) (Library dues); 65 (Graduation theses)
- 1678 14 (1); 50 (4) (Library dues)
- 1679 37 (1); 85 (4) (Library dues); 58 (Graduation theses)
- 1680 48 (1); 109 (4) (Library dues); 59 (Graduation theses)
- 1681 12 (1); 89 (4) (Library dues); 32 (Graduation theses)
- 1682 24 (1); 89 (4) (Library dues); 52 (Graduation theses)
- 1683 30 (1); 82 (4) (Library dues); 88 (Graduation theses)
- 1684 29 (1); 85 (4) (Library dues); 54 (Graduation theses)
- 1685 23 (1); 91 (4) (Library dues); 50 (Graduation theses)
- 1686 22 (1); 48 (4) (Library dues); 50 (Graduation theses)
- 1687 38 (1); 103 (4) (Library dues); 75 (Graduation theses)

- 1688 41 (1); 80 (4) (Library dues); 71 (Graduation theses)  
 1689 25 (1); 118 (4) (Library dues)  
 1690 39 (1); 80 (4) (Library dues); 60 (Graduation theses)  
 1691 45 (1); 125 (4) (Library dues)  
 1692 45 (1); 118 (4) (Library dues); 90 (Graduation theses)  
 1693 45 (1); 126 (4) (Library dues)  
 1694 62 (1); 109 (4) (Library dues); 96 (Graduation theses)  
 1695 53 (1); 139 (4) (Library dues)  
 1696 46 (1); No figures for bajan year (Library dues)  
 1697-98 No figures  
 1699 114 (Graduation theses)  
 1700-03 No figures  
 1704 64 (Graduation theses)  
 1705 110 (Graduation theses)

## GLASGOW

All the figures below are taken from the Fasti; the figures given first represent the magistrand class; these are followed by the figures for the bajan class.

- 1600 11 (1)  
 1601 13 (1) 38 (4)  
 1602 8 (1) 19 (4)  
 1603 8 (1)  
 1604 13 (1) 30 (4)  
 1605 5 (1) 43 (4)  
 1606 12 (1) 11 (4)  
 1607 14 (1) 26 (4)  
 1608 5 (1) 23 (4)



1609	19 (1)	29 (4)	1621	19 (1)	45 (4)
1610	18 (1)	28 (4)	1622	24 (1)	26 (4)
1611	8 (1)	30 (4)	1623	15 (1)	37 (4)
1612	14 (1)	30 (4)	1624	26 (1)	34 (4)
1613	18 (1)	13 (4)	1625	17 (1)	33 (4)
1614	22 (1)	26 (4)	1626	21 (1)	23 (4)
1615	8 (1)	30 (4)	1627	20 (1)	28 (4)
1616	14 (1)	32 (4)	1628	24 (1)	43 (4)
1617	22 (1)	44 (4)	1629	5 (1)	33 (4)
1618	19 (1)	36 (4)	1630	20 (1)	50 (4)
1619	16 (1)	27 (4)	1631	20 (1)	43 (4)
1620	19 (1)	31 (4)	1632	19 (1)	43 (4)

From 1633 onwards the numbers of matriculated students at Glasgow are broken down by year. There are also lists of M.A.s.

Date	Bajan	Semi	Bachelor	Magstrand	M.A.s
1633	29	1		6	23
1634	35	9 over the higher classes			25
1635	26	7 over the higher classes			17
1636	32	3 over the higher classes			21
1637	31	8 over the higher classes			33
1638	28	8	6	1	27
1639	No records				32
1640	35	14	4	1	11
1641	22	2	1	2	10
1642	19	13 over the higher classes			23
1643	37	7 over the higher classes			22
1644	30	27	10	1	21
1645	No records				13

Date	Bajan	Semi	Bachelor	Magistrand	M.A.s
1646	3	4	3	7	21
1647	No records				29
1648	14	20	6		24
1649	No records				21
1650	34	8			24
1651	18	6	2		22
1652	No records				12
1653	41	32	7	3	26
1654	18	2	2	5	28
1655	No records				20
1656	No records				23
1657	58	41	26		21
1658	8				25
1659	49				24
1660	69				No record
1661	66				26
1662	49				14
1663	66				32
1664	46				33
1665	61	19 over the higher classes			31
1666	39				16
1667	37	24			19
1668	23	49			12
1669	46				21
1670	42				21
1671	39	8			24
1672	55	25			26



Date	Bajan	Semi	Bachelor	Magistrand	M.A.s
1673	69	25			29
1674	44				28
1675	28	11			26
1676	42	20			26
1677	No records				No records 1677-94
1678	34				
1679	48		23		
1680	18	48 over the higher classes			
1681	57	19 over the higher classes			
1682	73				
1683	No records				
1684	61				
1685	34				
1686	No records				
1687	7	37			
1688	35	40			
1689	65				
1690	17				
1691	16	41	9		
1692	23	51			
1693	57	29	4	1	
1694	42	56		5	
1695	52	70	8		20
1696	19	88	5	2	1 recorded
1697	62	37	6		No records until 1707
1698	24	76	6	2	
1699	36	35	10	5	

Date	Bajan	Semi	Bachelor	Magistmnd	M.A.s
1700	15	66	19	4	
1701	32	55	5	13	
1702	43	62	4	25	
1703	29	68	3	24	
1704	29	39	9	13	
1705	17	40	4	18	
1706	17	44	7	17	
1707	13	31		9	29
1708	14	31	1	21	23

## ABERDEEN

## King's

All the figures given below are taken from lists of M.A.s

1600	9	1614	10	1628	10
1601	10	1615	8	1629	13
1602	6	1616	17	1630	14
1603	6	1617	15	1631	12
1604	11	1618	16	1632	8
1605	8	1619	20	1633	15
1606	7	1620	8	1634	15
1607	8	1621	13	1635	11
1608	16	1622	8	1636	12
1609	6	1623	11	1637	7
1610	12	1624	8	1638	13
1611	8	1625	9	1639	10
1612	17	1626	10	1640	5
1613	10	1627	9	1641	5



1642	5	1666	41	1689	No figures
1643	13	1667	35	1690	No figures
1644	12	1668	39	1691	No figures
1645	7	1669	27	1692	No figures
1646	12	1670	40	1693	33
1647	12	1671	No figures	1694	42
1648	12	1672	36	1695	29
1649	19	1673	12	1696	No figures
1650	16	1674	30	1697	18
1651	23	1675	20	1698	No figures
1652	13	1676	27	1699	No figures
1653	14	1677	20	1700	29
1654	3	1678	22	1701	25
1655	10	1679	16	1702	No figures
1656	8	1680	15	1703	No figures
1657	8	1681	20	1704	No figures
1658	14	1682	14	1705	24
1659	16	1683	28	1706	25
1660	18	1684	25	1707	No figures
1661	19	1685	19	1708	No figures
1662	27	1686	26	1709	No figures
1663	21	1687	3	1710	20
1664	33	1688	No figures	1711	22
1665	No figures				

## Marischal

1605 Admitted: 6 (4) 13 (3) 10 (2) 6 (1)  
 1606 Admitted: 25  
 1607 Admitted: 6  
 1608 Admitted: 19  
 1609 Admitted: 28  
 1610 No figures  
 1611 Admitted: 15  
 1612 Admitted: 15  
 1613 Admitted: 9  
 1614-15 Oaths 21 (4) 9 (3) 11 (2) 9 (1)  
 1616 Admitted: 22 (4) 19 (3) 12 (3) 7 (4) Laureated: 7 (Theses)  
 1617 Admitted: 16 (4) 23 (3) 13 (2) 8 (1) Laureated: 11 (Theses)  
 1618 Admitted: 11 (1) 19 (2) 15 (3) 18 (4) Laureated: 8 (Theses)  
 1619 Laureated: 8 (Theses)  
 1620 Admitted: 24 (4) 20 (3) 13 (2) 7 (1)  
 1621 Admitted: 18  
 1622 Admitted: 21  
 1623 Admitted: 21 Laureated: 10 (Theses)  
 1624 Admitted: 22  
 1625 Admitted: 22 Laureated: 11 (Theses)  
 1626 Admitted: 15 Laureated: 8 (Theses)  
 1627 Admitted: 27 Laureated: 12 (Theses)  
 1628 Admitted: 23  
 1629 Admitted: 22  
 1630 Admitted: 23  
 1631 Admitted: 34 Laureated: 11 (Theses)  
 1632 Admitted: 13



1633 Admitted: 26  
 1634 Admitted: 23 Laureated: 15 (Theses)  
 1635 Admitted: 35  
 1636 Admitted: 8  
 1637 Admitted: 31 Laureated: 17 (Theses)  
 1638 Admitted: 16  
 1639 Admitted: 13  
 1640 Admitted: 7  
 1641 Admitted: 15  
 1642 Admitted: 16  
 1643 Admitted: 7 Laureated: 8 (Theses)  
 1644 Admitted: 8  
 1645 Admitted: 9  
 1646 Admitted: 17  
 1647 Admitted: 12  
 1648 Admitted: 14  
 1649 Admitted 7 (4) 8 (3) 19 (2) 16 (1)  
 1650 Admitted 33 (4) 6 (3) 4 (2)  
 1651 Admitted 30 (4)  
 1652 Admitted: 22 Laureated: 15 (Theses)  
 1653 Admitted: 18 Laureated: 10 (Theses)  
 1654 Admitted 35 (4) 3 (3) 6 (2) 1 (1) Laureated: 20 (Theses)  
 1655 Admitted 20 (4) 1 (3) 1 (2)  
 1656 Admitted 31 (4) Laureated: 17 (Theses)  
 1657 Admitted: 27 (4) Laureated: 15 (Theses)  
 1658 Admitted 19 (4) 7 (3) 2 (1) Laureated: 23 (Theses)  
 1659 Admitted 34 (4) Laureated: 14 (Theses)

- 1660 Admitted 49 (4) Laureated: 20 (Theses)
- 1661 Admitted 18 (4) 11 (3) 1 (1)
- 1662 No figures
- 1663 Admitted 13 (4) 18 (3) 1 (2)
- 1664 Admitted 25 (4) 7 (3) 2 (3)
- 1665 Admitted 25 (4) 17 (3) 2 (2)
- 1666 Admitted 37 (4)
- 1667 Admitted 32 (4)
- 1668 Admitted 26 (4)
- 1669 Admitted: 15 Laureated: 21 (Theses)
- 1670 Admitted: 31 Laureated: 21 (Graduation fees)
- 1671 Admitted: 54 Laureated: 17 (Graduation fees)
- 1672 Admitted: 30 Laureated: 11 (Graduation fees)
- 1673 Admitted 20 (4) 41 (3) 23 (2) 11 (1) Laureated: 21 (Theses)
- 1674 Admitted: 26
- 1674-75 109 in the whole university (from a list drawn up for  
a rectorial election)
- 1675 Admitted 30 (4)
- 1676 Admitted: 12
- 1677 Admitted: 38
- 1678 Admitted: 30 Laureated: 16 (Graduation fees)
- 1679 No figures
- 1680 Admitted: 34
- 1681 Admitted: 18
- 1682-1700 Most of the figures are gleaned from records of students  
paying chamber mails
- 1682-83 14 (4)
- 1683-84 10 (4) 23 (3)



1684-85 9 (4) 11 (3) 9 (2)  
 1685-86 22 (4) 12 (3) 13 (2) 12 (1)  
 1686-87 3 (4) 20 (3) 9 (2) 6 (1)  
 1687-88 9 (4) 8 (3) 4 (2) 16 (1)  
 1689-90 3 (4) 14 (3) 2 (2) 3 (1)  
 1690-91 6 (4) 7 (3) 8 (2) 6 (1)  
 1691-92 10 (4) 5 (3) 3 (2) 2 (1)  
 1693 Laureated: 19 (Theses) 1692-93 No figures for chamber mails  
 1693-94 6 (4) 6 (3) 10 (2) 4 (1)  
 1694-95 19 (4) 17 (3) 3 (2) 4 (1)  
 1695-96 15 (4) 23 (3) 12 (2) 4 (1)  
 1696-97 Total students paying chamber mails: 36  
 1697 Laureated: 18 (Theses)  
 1697-98 6 (4) 16 (3) 14 (2) 4 (1)  
 1698-99 No figures Laureated: 24 (Theses)  
 1700 Laureated: 27 (Theses)  
 1704 Laureated: 54 (Theses)  
 1708 Laureated: 66 (Theses)  
 1711 Laureated: 29 (Theses)  
 1712 Laureated: 65 (Theses)

#### St.Andrews

Numbers are taken solely from graduation theses

#### St.Salvator's

1603: 20  
 1608: 36  
 1613: 18  
 1627: 17

#### St.Leonard's

1611: 23  
 1612: 18  
 1614: 23  
 1617: 32

## St. Salvator's

1628: 12

1629: 12

1631: 18

1632: 12

1635: 25

1657: 17

1668: 22

1690: 21

1703: 22

## St. Leonard's

1629: 14

1630: 11

1631: 11

1632: 18

1634: 27

1635: 15

1674: 20

1675: 20

1676: 30

1679: 28

1697: 17

1703: 31

## Appendix 5: Bibliography

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## The Scottish universities

## (a) Library lists

## EDINBURGH

Register of contributions to the library from magistrates, containing



the names of candidates and the amount of money they gave, also  
the titles of the books bought with the prices, 1627-96

EUL-Da.1.32

Record of contributions paid by students at matriculation, 1653-95,  
with details of books purchased and other disbursements for  
library purposes to 1693

EUL-Da.1.33

General book of disbursements on the purchase of books, written  
by Robert Henderson, Librarian, 1693-1719

EUL-Da.1.34

Henderson's Donation Book: a record of books donated to the  
University Library, 1667-1755

EUL-Da.1.31

List of books donated or purchased from funds donated, 1619-44

EUL-Da.1.29

## GLASGOW

Catalogue of the books in the library of Glasgow University, 1691,  
with later additions

GUL-Special Collections Room

Library accounts, 1630-1745

GUL-Archives 26624

Library list, 1699-1711

In GUL-Archives 26778

## ABERDEEN

Catalogue of books in King's College Library ca.1700

AUL-K.111

Catalogue of books in King's College Library, 1717

AUL-K.113

Catalogue of books presented to King's College Library, 1684-1860

AUL-K.114-115

Catalogue of books bequeathed to Marischal College, 1669-1713

AUL-M.71

## ST.ANDREWS

Foundation catalogue of the University library, ca.1644-49

St.A-Ms.Dept.

Catalogue of books belonging to the public library of the University of St.Andrews drawn up by order of the Visitation in April 1687, with later additions

St.A-Ms.Z.921.St.A.C.87

Catalogue of books belonging to the library of the University of St.Andrews, 1714

St.A-Ms.Z.921.S.2.D03

Catalogue of the Murray and Wedderburn gifts - St.Leonard's College

St.A-Ms.Z.921.St.A.L.47

(b) Uniform courses

An introduction to special physics, by William Black, King's College

EUL-Do.1.32

Memorandum on a course of general physics, drawn up by King's and Marischal Colleges for the University Commission of 1697

AUL-K.219 (Box A)

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General

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## Edinburgh

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Collection of papers illustrative of the history and constitution  
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Netherlands. EUL-Ms.Gen.528-530



## Glasgow

Iura Leres Instituta, including a list of graduates and students and a catalogue of the library (17th century). GUA-26619

Register of the Acts agreed upon by the Commissioners of the four Scottish Universities, 1647 GUA-26790

Copy report of the Commissioners of visitation. Visitations of 1664, 1680-83, 1690-95, 1726-27 GUA-26637

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## Aberdeen

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AUL-M.91

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AUL-K.36-40

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AUL-K.150

Papers concerning visitations by parliamentary commissioners toAberdeen University, 1582-1717

AUL-M.91.1

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## ADDITIONAL MATERIAL

### 1. Graduation theses

The National Library of Scotland has recently acquired a microfilm of Bodleian MS.4.30, which contains the following St.Andrews theses. They are not listed in Appendix 2, and Aldis does not record them.

Date	Praeses	Location
1610	Peter Bruce (St.L.)	NLS-Mf.47(8[12])
1610	D.Robertson (St.S.)	NLS-Mf.47(8[1])
1612	James Blair (St.S.)	NLS-Mf.47(8[2])
1613	William Macdowal (St.L.)	NLS-Mf.47(8[3])
1614	James Schevez (St.S.)	NLS-Mf.47(8[4])
1615	David Monro (St.S.)	NLS-Mf.47(8[9])
1616	James Wemyss (St.L.)	NLS-Mf.47(8[5])
1617	Robert Baron (St.S.)	NLS-Mf.47(8[6])
1618	Andrew Bruce (St.L.)	NLS-Mf.47(8[10])
1618	William Martin (St.S.)	NLS-Mf.47(8[7])

### 2. Student notebook

Edinburgh University Library has recently acquired from the Bodleian Library a notebook belonging to Zarishaddai Lang, who graduated in 1639. It contains lectures delivered by Robert Rankin from 1636 to 1638 (Shelf mark: EUL-Gen.1965). The lectures are commentaries on the logic works of Aristotle and Porphyrius, with some notes on spheres, eccentrics and lunar eclipses. They contain no new points of interest, but what is interesting is the inclusion at the back of the notebook of a number of individual theses, which seem to have been defended by Scottish students (David Monro and William Little are two of the names listed) during December 1637 and January 1638, probably as an exercise in disputation.



3. St.Andrews contribution to the scheme of the 1690s for a uniform course

An introduction to logicks and An introduction to metaphysicks are generally considered to be St.Andrews contribution to the uniform course which was proposed in the 1690s. I stated in my thesis (p.49, 89-90, 145-6) that I had doubts about whether they were part of this course, but was unable to produce any concrete evidence to substantiate my suggestion. Since submitting my thesis, however, I have found a logic notebook in Edinburgh University Library (shelf mark: Dc.8.17) which I believe to be St.Andrews contribution to the uniform course, and which is completely different from the work printed in London in 1701. The logic treatise set out in this notebook tallies exactly with the criticisms made by the other universities of the St.Andrews course. A few instances will suffice to demonstrate this (the pagination does not tally with the pagination of the copy circulated to the other universities for comment, which sometimes makes the location of the references difficult):

Edinburgh says of the St.Andrews logic:

1. "Whereas the authors say in their preface that they have in some chapters used the Analytick method in others the Synthetick; it had been very proper to have given an example of some chapters of each method."

On p.2 of the treatise we read "Capita particularia quandoque methodo synthetica, quandoque analytica tradenda sunt."

3. "The method in the first part seems not accurate in regard they treat first anent some divisions of the ideas and then de idearum objectis, de modo quo objecta mente exhibentur, de obiectorum distinctione and de categoriis, and after this they do again treat of the division of the ideas."

cf. p.25ff. of the treatise:

Chapter 1: De natura idearum

Art.1: De sensatione, imaginatione et intellectione pura

Art.2: De ideis simplicibus et complexis

Chapter 2: De idearum objectis

Art.1: De modo quo objecta menti exhibentur

Art.2: De objectorum distinctione

Art.3: De objectorum classibus seu categoriis

5. "Page 4, pt.1, where they give the effatum, Actus specificantur  
ab objectis they omite to adde et a modo tendendi in objecta."

On page 28 of the treatise we read "hinc oritur commune illud effatum  
actus specificantur ab objectis."

9. "Page 34, pt.1: We do not know what is meant by these words Accidens  
metaphysicum est modus rem aliquam representandi; and its definition  
accidens metaphysicum est attributum essentiale is not accurate  
except they add secundarium."

On page 47 of the treatise we read: "Per accidens metaphysicum intelligunt  
(attributum quodvis essentiale, vel quemlibet modum rem aliquam  
repraesentandi); everything in the brackets is scored out, and in its  
place we read "quicquid concipitur tanquam rei attributum, sive sit  
essentiale sive accidentale."

Aberdeen says of the St.Andrews logic:

III. "Introduction, p.5 haud bene definitur terminus 'sonus apprehensionem  
simplicem manifestans.'"

On page 4 of the treatise we read "Sonus apprehensionem simplicem, seu  
ideam manifestans dicitur terminus."

Glasgow says of the St.Andrews logic:

Part.1, p.9: "Male dicitur substantias cogitantes dividi in finitas et  
infinitas."

On page 31 of the treatise we read: "Substantiae omnes dividuntur in  
cogitantes et extensas: cogitantes in finitas et infinitas."



At the end of the treatise is a list of emendanda et corrigenda, some of which obviously arise from the criticisms of the course which had been made by the other universities:

e.g. Glasgow says of part 1, p.3: "Non videmus quin idea ligni tam debeat dici simplex quam idea thymeamatis vel condimenti."

In the treatise we read: "p.27: Affirmatur omnes sensationes esse ideas simplices nec ulla thymiamata, condimenta, vel medicamenta complexam nobis ideam ingerere, sed temere fortasse..."

The evidence of this notebook proves fairly conclusively, I think, that An introduction to logicks is not St.Andrews contribution to the uniform course of the 1690s, and strengthens the case for denying the similar claim which is usually made for An introduction to metaphysicks.

## DATING OF DICTATES

I have already alluded to the difficulties of dating the dictates (p.5-7), but perhaps a further word of caution should be added. In the lists in Appendix 1 I have tried as far as possible to give a precise date to the dictates, and in nearly every case this is taken from the headings and margin dates of the notebooks. However, these may not always be the correct dates. For instance, there is a notebook dated 1681-82 containing lectures by John Tran of Glasgow on logic, ethics and natural philosophy. These cannot all have been given in the course of one academic year, but represent the three year's philosophy course. In cases such as these further investigation is required to try to achieve more accurate dating.